NORTHROP NEWS

ELECTRO-MECHANICAL

VOLUME 29-30

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NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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AN ARMY UH-1H helicopter arrived this week for installation of a Northrop TISEO (Target Identification System, Electro-Optical). TISEO will be evaluated by the Army under a two-months test program at Hunter Liggett Test Range near Fort Ord. Shown with the helicopter are, from left, Northrop's Ed Kong and Bob Lane; CWO's James Hill and Bernard Musso of the 155th Aviation Company Attack Helicopter; and Northrop's Dave Conklin and Dr. W. B. Simecka. Not shown is Crew Chief SP-5 Miller.

AT RANCHO DE SANTIAGO

Picnic Coming August 22

The NRC Family Picnic is again set for Rancho de Santiago, a mountain-lake location, on Aug. 22.

Last year's picnic in the same location drew the largest picnic crowd in recent years. Reports of those attending went like this:

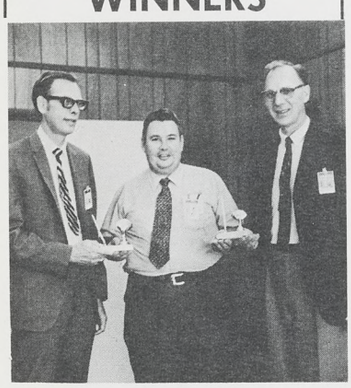
Lydia Arujo, Ordnance Engineering, "My little boy loved the magic show and the game where children ran with water-filled balloons."

Sefie Garcia, Plant Engineering: "Our children loved the clown. I enjoyed just sitting under the trees."

Chuck Fellow, Property Control: "I took my boy and he loved it."

Duane Baptiste, NRC special events chairman, said the program would be similar to last year. "There will be two free hot dogs, free soft drinks and ice cream, games, contests, and the clown will be back. There is a twenty-five cents charge per person for Northrop personnel and their families. Guests are $2."

WINNERS



LEE WEARDA, left, and Warren Shereyer, winners in the Noontime Bridge tourney, receive trophies from tournament coordinator, Jerry Winterton, center. The winning team took an early lead and then beat off a late challenge by second place team of Walt Resann and Jerry Winterton. Twenty players took part in the competition which was close all the way. The Noontimers meet four days a week, Mondays through Thursdays and welcome new members. Those interested can call Mr. Winterton at ext. 1286.

SERVICE PINS

Two division employees became eligible for 15-year service pins this month and seven others qualify for 10-year pins.

The 15-year employees are Ralph Cornwell, Jr., Electro-Optical, and Una La Deane Murray, Shipping.

Ten year veterans are Olive Carter, Cost Information; Ron Grishaber, Reproduction; Patricia Jennings, Automation Systems; George Neidhardt, Contract Management and Planning; Sir Schuler, Maintenance; and Evelyn Witsil, Technical Publications and Training.

Division Notes Twentieth Anniversary This Month

The Electro-Mechanical Division observes its 20th anniversary this month because the U. S. Army needed rangefinders in 1951.

In March 1951 Northrop Aircraft Company received a contract for 600 Patton tank rangefinders and a new "Anaheim Division" was formed to do the work. This division grew into the present Electro-Mechanical Division.

A nucleus for the new division was formed in a temporary facility in Lawndale. Then on Aug. 3, 1951, ground was broken for the first building, Plant One, at Anaheim.

A big milestone in the division's history came in 1957 when the Anaheim Division joined with units which are now the Electronics Division to form the Nortronics Division.

In January 1969 continued expansion brought about the separation of the Nortronics Division into the present Electro-Mechanical and Electronics Divisions.

Frank W. Lynch, was named a corporate vice president and general manager of the Electro-Mechanical Division at that time. Since then the division's progress has been marked by continued diversifications. Northrop Support, Inc., was formed to further the division's work in the support field, and Olson Laboratories was acquired to strengthen the company's environmental systems programs.

Today the Electro-Mechanical Division's active programs include Electro-Optical, stringers and floorbeams for the Boeing 747, components for the T-38 / F-5, automated test equipment, support activities ranging from deep ocean submergence to systems support of the Augustana Hospital in Chicago, and noise monitoring, smog emission and other important environmental programs.

TOP SHOOTERS

Mike Szidik took first place in the 1970-71 National Rifle Association Winter League matches sponsored by the EMD Gun Club, according to Bert Millspaugh, club range officer.

The scoring was done on a handicap system. Mr. Szidik shot a handicap average score of 385.-094 for first place. John Barth was second with 384.392, and Roy Pracht was third with 383.-485.

Welcoming Our Neighbors

JAMES R. JOHNSON, president, Holmes and Narver, Inc., is welcomed to Anaheim by Frank W. Lynch, center, general manager, Electro-Mechanical Division, and Don McInnis, vice president, Operations, right. Two hundred employees of Holmes and Narver moved into Building Y-3 on Aug. 1.

Hawaii Seeks Equipment To Test Autos

Northrop's Electro-Mechanical Division has received a contract from the State of Hawaii to provide equipment for a state operated vehicle emission test center in Honolulu.

The equipment provided under the $31,000 contract will be used to set up a test system similar to the Northrop-Olson Auto Emission Test Center in Anaheim.

The center will be a research and evaluation operation for future implementing of Federal emission standards. It will test exhaust gas samples for hydrocarbon and carbon monoxide content. In addition, the center will have a growth capability for adding oxide of nitrogen tests later.

The contract should be completed by late November. It is being administered by the Electro-Mechanical Division's Environmental Systems group with Noble Bishop as project engineer.

HOLIDAY NEAR

Another three-day holiday is coming up for Northrop personnel when company facilities suspend operations Monday, Sept. 6, in observance of Labor Day.

Regular shifts will resume Tuesday, Sept. 7.

NOW BURNING CLEAN NATURAL GAS
Mike Di Curcio fills tanks as Bill Steen applies sticker.

BURN CLEAN NATURAL GAS

Company Vehicles Aid Pollution Cause

Northrop has taken still another step in its continuing fight against air pollution in the Southland by adapting 10 Aircraft Division vehicles to burn natural gas as a fuel.

Natural gas contains no lead, burns cleanly and greatly reduces emission of carbon monoxide, hydrocarbons, oxides of nitrogen and particulate matter in exhausts.

The 10 vehicles include vans, panel wagons and pickups which normally operate between Northrop facilities in the Southland, plus some Plant Protection units.

Each is equipped with a Dual Fuel System unit which enables them to be operated on either natural gas or gasoline. Natural gas storage tanks, refilled from in-plant facilities, carry the vehicles about 100 miles, an average day's driving for each. Each system is comprised of the tanks, regulators to reduce fuel pressure, a gas/air mixer with air filter and a dashboard selector to switch from one type fuel to the other.

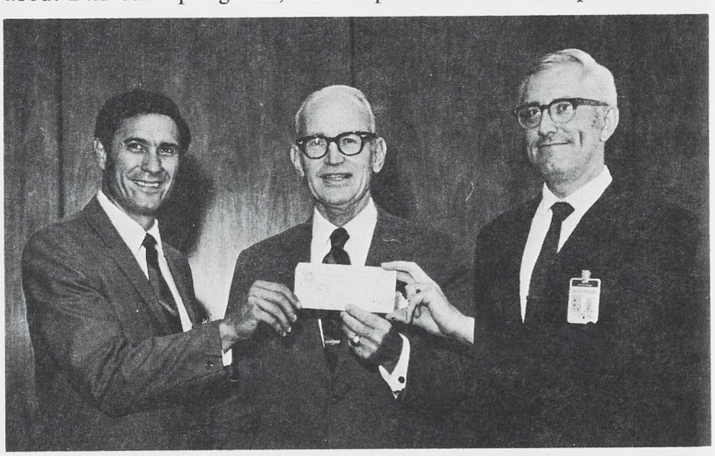
In addition to their anti-pollution capabilities, the 10 vehicles cost less to operate on a day-to-day basis.

For example, gasoline costs about 24.1 cents per gallon, while an equivalent amount of natural gas sells for six cents. Oil changes are required at 6,000-mile intervals and spark plug changes at 14,000 miles with gasoline, while with natural gas the change interval is 30,000 and 40,000 miles, respectively. Increased engine life, reduced fuel inventories and tax advantages also add to lower costs.

Over the past five years the division has converted its in-plant vehicles, exclusive of battery-powered units, to burn propane in another move to control air pollution whenever possible.

UNUSUAL GIFT FOR A FOUNDER

MR. AND MRS. JOHN K. NORTHROP were guests of Aircraft Division Management Club recently for Founder's Night. During the evening, Mary Superata, right, presented them with unusual hanging tapestry made of nylon yarn and featuring Flying Wing motif. With them are Dick Greetan, left, club president, and Jake Superata who worked with Mr. Northrop during early days of company.



HONORED BY NASA FOR CONTRIBUTIONS
Joe Bogdanovic, left, and Walt Keller with W. E. Woolwine, center.

BOGDANOVIC, KELLER HONORED BY NASA

Joe Bogdanovic and Walt Keller, Aircraft Division senior technical specialists, have been commended by NASA for contributions in the field of new technology innovations.

Each received a letter of thanks and a $25 check.

During the course of work on a NASA contract held by Northrop, the pair developed a new type liquid flowmeter capable of economically and accurately measuring extremely low flow rates of corrosive fluids. NASA considered the invention important enough to include it in its "Technical Briefs."

Subsequently, a NASA Inventions and Contributions Board reviewed the device and authorized the awards and letters.

Reentry Arc Length Fuze Hardware Is Completed

Electronics Division has successfully completed the hardware portion of the Reentry Arc Length Fuze (RALF) program, according to Herb Stark, program manager.

The $2.7 million Air Force Space and Missile Systems Organization contract called for the design and fabrication of five RALF units over a 26-month period.

RALF is a miniaturized digital computer and sensing device. It is designed for use aboard a number of reentry vehicles.

Mr. Stark stated that the division is presently working on the program under a three-month extension of its original contract, during which time it will provide flight test support for RALF units launched from Vandenberg AFB.

Division personnel working on the RALF program are Tom Pryor, Francis Van Slyke, Paul Bockemohle, Vince DeMartino, Jitsuo Yamamoto, Ron Johnson, Ron Roy, Dick Miller, Don Anderson, Leo Boyd, John Williamson and Bill Hale.

CASTLE TOUR

An NRC Travel Club tour to Hearst Castle, San Simeon, will depart Hawthorne at 9 a.m., Oct. 2, returning the afternoon of Oct. 3.

The $24.50 package cost includes round trip bus transportation, double occupancy room at the Golden Tee and a choice of two tours at Hearst Castle. Meals are not included.

Personnel Activities outlets are accepting reservations which must be paid for by Sept. 22.

BAR CHOICE

Greg P. Stefflre of Spares Control, Aircraft Division, has been accepted for membership and practice by the California State Bar Association. Mr. Stefflre was sworn in on June 29. He received his law degree from Southwestern College.

NORTHROP NIGHT DUCATS ON SALE

Tickets for an exclusive Northrop Night at Magic Mountain are now available, at $4 each, through Northrop ticket outlets at all facilities.

The price includes parking, admission to the new fun center and unlimited use of rides and attractions between 7 p.m. and 1 a. m. Saturday, Sept. 25. Top name entertainment will be presented at the Showcase Theater and is included in the package price.

No tickets will be sold at the gate on Northrop Night.

HARDWARE DELIVERY COMPLETED
Secretary Sheila Bondi displays a RALF device.

Seamanship, Boating Safety Class Slated by Coast Guard Auxiliary

Flotilla 59, United States Coast Guard Auxiliary, has extended an invitation to Northrop personnel to take part in a 12-week Basic Seamanship and Boating Safety class to be held at Leuzinger High School.

The Aircraft Division's Wayne Moles is Flotilla 59 operations officer. He says the class will begin at 6:45 p.m. Sept. 13 and will meet at the same time each Monday. No advanced registration is required.

Flotilla 59 meets the fourth Thursday of each month at NRC Clubhouse, Hawthorne, and is open to Northrop personnel.

HAWAIIAN TOUR

A kickoff meeting for the annual NRC yearend holiday tour to Hawaii is set for 8 p.m. Aug. 27 at the Alondra Club, Lawndale.

Full information on tour activities, entertainment and refreshments will be served.

Brochures describing the yearend tour will be available. Those who like may dine at the Alondra Club prior to the meeting.

Wind Tunnel Tests Verify Design and Performance Characteristics of F-5E

A scale model of Northrop's new F-5E International Fighter aircraft has successfully completed a highly detailed series of transonic and supersonic wind tunnel tests to verify its design and performance characteristics.

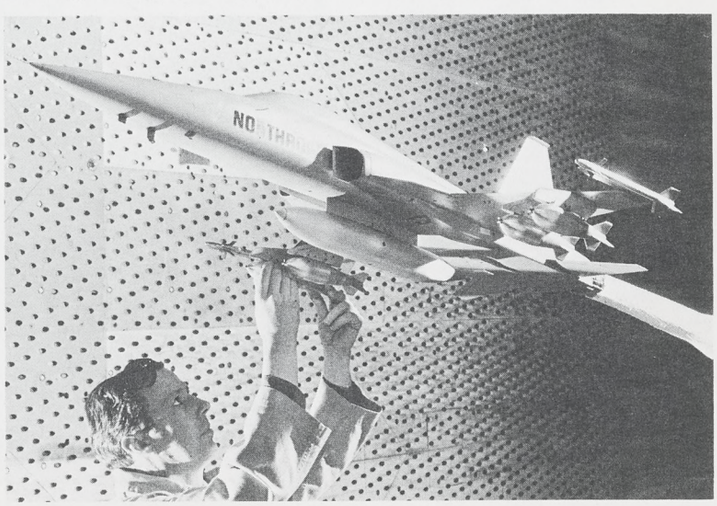
During the tests at the Air Force Systems Command's Arnold Engineering Center, the F-5E model was examined in its "clean" configuration with Sidewinder missiles on the wingtips as well as externally-mounted bombs and fuel tanks.

In the latest version of the Northrop F-5 aircraft, the F-5E's wing area has been increased, the inlet and duct area has been enlarged and the fuselage lengthened.

The test program, which was verified by personnel of ARO, Inc., operating contractor of the center, was completed ahead of schedule.

The F5-E, an advanced version of Northrop's F-5, will be made available to allied countries under the U.S. military assistance program with initial deliveries to Southeast Asian nations.

PREPARING FOR F-5E WIND TUNNEL TESTS



TECHNICIAN ADDS SCALE MODEL EXTERNAL ITEMS

At 17 Michael Woody Is Bronc Riding Champion

Michael Woody, son of an Aircraft Division development mechanic in Advanced Production, is a teenage rodeo champion in the state of Oregon.

Michael has won first place in the 10-17 age bracket of bareback bronco riding at the Basin Rodeo in Klamath Falls, Ore., for two years in a row.

Born and raised in Gardena, he is a true Northrop son. His mother, Eve, also worked at Northrop when he was born 17 years ago.

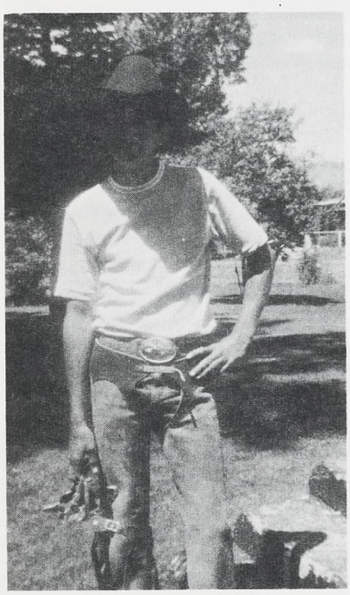
Young Michael enjoyed the usual childhood, his father explained. He was active in Boy Scouts, Little League, and wrestled and swam competitively. "But his main love, though, has always been horses," he said.

Two years ago, on a visit to his sister's home in Klamath Falls, he liked the area so well he decided to stay.

Horses and rodeo are his way of life now. He lives with another sister and her husband in Montana where he is president of the Riding Club at Columbia Falls High School. He'll be a junior there this fall.

"His sights are set on being a national champion and riding at the Cow Palace in San Francisco and the Calgary Stampede in Canada," says his father.

A onetime rodeo contestant himself, his father is looking forward to the day when he can move north and get on the rodeo circuit with his son.



TEENAGE CHAMP
Michael Woody ready to ride.

MC COY NAMED

Vice President John L. McCoy has replaced Vice President M. G. Gonzalez as chairman of the Aircraft Division's General Safety Committee which acts for the general manager in matters involving environmental health and safety.

In urging support of Mr. McCoy in his new duties, General Manager F. W. Lloyd praised the efforts of Mr. Gonzalez and the General Safety Committee over the past year.

Like Cinderella, Tomato Worm Has Beautiful Future

A tomato worm is a horror to gardeners, but a joy to Jon McFadden, Electro-Mechanical Division automobile mechanic.

He collects them and then grows the worms through the pupae stage until they shed their cocoons and turn into large, beautiful Sphinx moths. These he mounts and adds to his collection of butterflies and moths.

He began collecting and mounting butterflies when he was a child and then later added moths to the collection.

He prefers to grow his own moths from larvae and worms because these moths fly at night and are difficult to catch.

"You often see them flying around lamp posts, but they are too high to catch easily," he said. "Also, if you grow your own, they are not as beat up as the wild ones."

OH YOU BEAUTIFUL WORM
Jon McFadden admires tomato worm he is growing.

MINOR LEAGUE CHAMPIONS
Coach Norm Henry with members of the Goldswingers.

Norm Henry Family Finds Relaxation In Bobby Sox Softball Loop Activities

Bobby Sox softball nearly became a way of life these past few months for the family of Norm Henry, chief of Quality Assurance in the Navigation Department, Electronics Division.

Mr. Henry served as head coach of the Goldswingers team in the minor league division of the Southwest Garden Grove Bobby Sox League; his wife, Bobbie, worked the concession stand during the games; and three of their daughters were players.

Two of the girls played ball on their father's team: Suzie, 9, and Cindy, 11, who led the team in the hitting department with a .603 batting average. The third daughter, Brenda, 12, played for a major league team.

"It's been a very rewarding season for the whole family," said Mr. Henry, who also was named to coach the league's all-star team in regional competition. "The Bobby Sox organization is one of the few outlets where a father can participate in organized sports with the female members of his family."

Kathy Riley, 13, Wins State Pole Bending Honors

Kathy Riley, 13-year-old daughter of Jerry Riley, Electro-Mechanical, is the new 1971 State Pole Bending champion.

Pole bending is a horse race over a track 100 yards long where the rider weaves around poles set in the ground.

Kathy and her horse, Rebel, made the double run from a standing start in the remarkable time of 9.60 seconds.

The contest, sponsored by Equestrian Trails group, is open, and Kathy competed against entrants who ranged from teenagers to men and women.

She received a huge trophy to add to the more than one hundred, she, her sister Barbara, her father and mother have won for their riding exploits.

Rebel, the horse, also received recognition for his part in the championship ride. He won a specially inscribed horse blanket.

Classified advertisements for the next issue of Northrop News, to be distributed Sept. 15, may be submitted between Monday, Aug. 30, and noon on Wednesday, Sept. 8.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Station Wagon, 1965 Chevelle, 6-cyl., $400. 213-326-7528.

Mustang, 1970, V-8, 302 h.p., std. trans., d/brakes, $2,200. 213-671-2889.

Sunbeam, 1967 Alpine convt., 4-spd. trans., r/h, $1,000. 213-329-3593.

T-Bird, 1967, d/brakes, radio, p/s, a/c, $1,400. 213-756-3401.

Pontiac, 1966, GTO built 389 4-spd., $1,300. 213-675-1336.

Ford, 1961, a/c, $200. Box 1501.

Mustang, 1966 2+2 Fastback, $1,050. Box 1502.

Volkswagen, 1964, $650. 213-865-5131.

Station Wagon, 1969 Opel Kadette, auto. trans., $1,400. 213-670-9258.

Volkswagen, 1968, sunroof, $1,300. 213-282-0500.

Ford, 1957, 4-dr., new parts, shop manuals, $60. 213-377-4604.

Imperial, 1968, full pwr., a/c, $2,300. 714-828-9243.

GTO, 1965 h/top coupe, new tires, $700. 213-831-5407.

Datsun, 1966 1600 roadster, lug. rack, h/top, $950. 213-542-4927.

T-Bird, 1961, new trans., a/c, p/s, p/b, FM stereo tape, $700 or $650 w/out tape. 714-826-9931.

Dodge 440, 1968, a/c, auto. trans., $1,650. 213-644-2781.

Fiat, 1969 convt., h/top, mag whls., $1,500. 213-830-5284.

Volkswagen, 1966, $750. 714-778-5823.

Chevrolet, 1965, 2-dr., S.S. h/top, a/c, p/s, p/b, $800. Box 1503.

Station Wagon, 1961 Falcon, stick shift, reblt. eng., $275. 714-527-7060.

Corvair, 1960, needs eng. work, $50. 213-679-3889.

Chevrolet, 1958 Impala 2-dr., r/h, p/b, p/s, 348 cu. in., $250. 213-324-9087.

Chevrolet, 1963 Super Sport, p/s, p/b, $500. 213-754-3665.

Valiant, 1960, auto. trans., $175. 213-723-4417.

Volkswagen, 1970, radio, $1,600. 213-346-4018.

Datsun, 1964, 4-dr., r/h, $500. 213-678-9818, 213-671-0351.

Chevelle, 1970 Sup. Spt. convt., 350 h.p., a/c, p/b, p/s, $2,950. 213-670-2098.

Porsche, 1965 SC, near new eng., $3,200. 213-675-1911.

Dune Buggy, & trailer, Ford powered, $500. 213-534-3410.

Volkswagen, 1970, sunroof, $1,600. 213-374-0258.

Buick, 1965 Riviera, full power, a/c, $1,075. 213-425-0581.

Pickup, Chevrolet, ½-ton, 283 V-8, auto. trans., cab-hi camper, $995. 714-776-1023.

Mustang, 1965, 3-spd. trans., $895. 213-423-5690.

Volkswagen, 1965, $600. 714-524-3591.

Honda 600, 1971, still under warranty, $1,250. 213-675-3139.

Chevrolet, 1966 Caprice, a/c, 2-dr., r/h, p/s, V-8 eng., $1,150. 213-428-1129, 213-428-2067.

Miscellaneous For Sale

Sailboat, 26′ o.l., 8′3″ beam, f/glass, radio telephone, 5 h.p. outbd. eng., dacron sail, jib & genoa, sleeps 4, $4,000. 714-772-4103.

Tape Recorder, Concord transistorized stereophonic, 4-track Mod 550, 3-spd. w/instant stop, sep. vol. controls & VU meters, many extras, $95. 213-679-2864.

Condominium, 1,400 sq. ft., 2-bdrm., den, 2 baths, dps., cpts., all elec. security sys., rec. rm., $30,500. 213-674-1400.

Pups, miniature dachshund, 2 black males, 3 mos. old, AKC, $75. 213-377-2637.

Air Conditioning Unit, Sears, for auto, all access., $100. 213-757-7417.

Couch, turquoise, matching chair, $50. 213-820-4134.

Pup, AKC, poodle, 5 mos. old, housebroken, $35. 213-866-4104.

Refrigerator, crosstop freezer, $35. 714-846-2378.

Cartop Carrier, 4′ x 7′ x 18″ deep, fully enc. & waterproof w/lock, $20. 213-375-4574.

Deer Rifle, 30-30 Marlin, carrying strap & ammo, fired 10 times, $65. 213-676-3365.

Miscellaneous For Sale

Boat, 14′ Crestliner, 45 h.p., outbd. Chrysler, elec. start, remote controls, trailer, $900. 213-320-5201.

Receiver, Kenwood TK-140, 150 w, $200. 714-893-7745.

Wedding Rings, yellow gold o/lap design, 7 diamonds, $300. 213-569-6543.

Door Exteriors, 3, w/windows, wood frame, 6, & screens, 2, $20. 213-324-7059.

Typewriter, Royal Standard upright, $20. 213-324-7259.

Shotgun, Winchester mod. 1400, 12 ga., auto., 30″ full choke, $105. 212-860-2305.

Phonograph, Capital high fidelity, 4 spkrs., $50. 213-831-4087.

TV, b&w, Zenith, 23″ console, $25. 213-326-0124.

Piano, Baldwin Acrosonic spinet & bench, mahogany, $475. 213-894-1381.

Sheepskin, acrylic, white, washable, 24″x30″, pad for bedridden person, $3.50. 213-675-2005.

Piano, Gulbransen small studio-type, 46″ long, 56″ high, $400. 213-641-6568.

Camping Equipment, Coleman, $125. 213-398-5179.

Guitar, elec., tune-a-matic bridge, hollow body, $70. 213-377-2570.

Mobile Home, 10x55, 7x22 expando, awnings, skirts, carport, tool shed, 6 yrs. old, $4,500. 213-378-0501.

Barbells, weighing 80 lbs., $10. 213-376-1356.

Crypt, dble., Capistrano Gardens, Inglewood Park Cemetery, $1,050. 213-675-5574.

Table, maple, square, w/louvered doors, $30. 213-325-3865.

Surfboard, 7′ Rick, diamond tail, $55. 213-374-8608.

Cabin, dble. gar. & mobile home, furn. or unfurn., $18,000. 213-424-7351.

Bed, dble., springs & mattress, h/board, night stands, dresser w/mirror, chest of drwrs., $65. 213-675-2514.

House, No. Inglewood, 3-bdrm., patio, lge. fenced yd., $26,500. 213-645-4163.

Stenotype Machine, LaSalle, books & tapes incl., $50. 213-374-6003.

TV, Zenith 21″ b/w, birch console, dual spkrs., $40. 213-671-6692.

Wetsuit, skin diver's type, small, $10. 213-833-4191.

Tires, 2 8.25x14, 4-ply Mohawk, $38. 213-324-8618.

Trailer, 1964, 18′ Kenskill, self-contained, $1,850. 213-675-6020.

Motorcycle, Honda, 1963 300 Dream, 305 cc, $290. 213-679-7584.

Tape Recorder, stereo solid state Sony 560-D, lid spkrs., all access., $150. 213-377-7940.

Hardtop, for Corvette, '63-'67, $175. 213-631-3008.

Porta-Crib, w/pad, $20. 213-326-8455.

Refrigerator, $30. 213-534-1094.

Cabin Cruiser, 16′ Harcraft, 4-whl. tandem tilt trailer, bait tank, 30 h.p. Evinrude, $950. 213-323-7177.

Crib, w/mattress, $20. 213-377-5003.

Boat, 16′, 40 h.p. Mercury outbd. w/elec. starter, bait tank, trailer, $600. 213-374-0118.

Crib, Baby Line, drop sides, mattress, $40. 213-530-0545.

Slide Projector, Argus 500 Electromatic, 35 mm, 100 Airequipt magazines, 3 carrying cases, $100. 213-541-2710.

Washing Machine, $25. 213-676-1856.

Tent Trailer, small, $325. 213-322-3249.

Stroller, $10. 213-328-0450.

Pups, miniature schnauzer, AKC, 7 wks. old, $125. 213-372-7875.

Lamp, lge. Perko, kerosene, $15. 213-645-3690.

Bicycle, child's 10″, & infant seat for adult bike, $15. 213-645-7972.

Punch Bowl, & glasses, $5. 213-376-4831.

Poodles, tiny tot, AKC reg. 2 apricot males, 1 yr. old, $100 ea. 714-546-6714.

Six-Pack, Mopar, set up for 383-440, complete, $100. 213-675-4764.

Motorcycle, 1970 Honda mini 50, $150. 213-374-6793.

Bureau, w/mirror, 6 drwrs., light wood, $15. 213-675-9659.

Motorcycle, 1971 SL 175 Honda, $550. 213-835-6585.

Bedroom Set, orthopedic mattress, $45. 213-323-0985.

Freezer, 16 cu. ft. General Electric No-Frost, 7 mos. old, harvest gold, $275. 213-372-7860.

Airplane, ¼ share, 1953 4-place Piper Tri Pacer, based at Hawthorne Airport, $850. 714-968-1776.

Dining Room Set, pedestal table, w/2 exts., 4 cane back chairs, china breakfront, fruitwood inlaid w/beryl, $375. 714-836-0994.

Miscellaneous For Sale

Washer, Whirlpool w/dryer, gas, white, $150. 213-532-2896.

Motorcycle, BSA 441 Victor, o/hauled, $500. 805-498-2867.

Drafting Table, Mayline, 6′x3½′, oak, $75. 213-670-5035.

House, 2-bdrm., new roof & paint, cpts., dps., lge. yd., assume FHA low int. loan, small dn., will take 2nd for bal., $21,950. 213-327-6373.

Washer, Maytag, & dryer, Sears, elec., $100. 213-327-2353.

Shotgun, 12 ga., Remington auto., shot twice, $135. 213-644-7941.

Signal Generator, mod. 315 Eico, $15. 213-675-2329.

TV Stand, portable, 12″ base, 19″ max. width, $1.50. 213-674-5427.

Racing Bicycle, men's Legi, 10-spd., $150. 213-641-0686.

Swimming Pool, 12′x3′ Doughboy, w/access., used 1 season, $50. 213-325-8175.

Tent Trailer, Apache, Buffalo mod., sleeps 5 or 6, dinette, stove, water, other access., $700. 213-679-4863.

Chalet, Club San Moritz, Crestline, 1,400 sq. ft. on 2 levels, furn., approx. 100′ x 100′ lot w/80′ concrete d/way, sleeps 11, $34,750. Box 1504.

Lot, 75x135, 29 Palms, $1,000. 213-679-2114.

Motorcycle, 1967 CL160 Honda Scrambler, $210. 213-329-2842.

Archery Set, 50# bow & quiver, other access., $30. 213-327-4585.

Motorcycle, 1969 Kawasaki 120TR, $300. 213-372-3827.

Refrigerator, 11.5 cu. ft., G.E., $75. 213-379-4517.

Push Mower, Sears, w/grass catcher, $10. 213-635-7942.

Console, walnut Danish, AM-FM radio & stereo, turntable, Silvertone, $75. 213-323-4729.

Skis, & buckle boots, size 9, used 1 season, $50. 714-846-4598.

Tire, 7.35-14, never used, 4-ply nylon, Sears Hiway Special, $8. 213-378-3529.

Guitar, folk-type, $30. 213-377-6648.

Bicycle, Miss GTO, $15. 714-832-7014.

Sectional, 3-pc., 3 yrs. old, $350. 213-376-2190.

Motorcycle, 1970 CB-175 Honda, $325. 213-377-4481.

Ski Boat, 15′ Chrysler Mustang, 85 h.p. Evinrude outbd. motor, $1,900. 213-670-4702.

Cemetery Lot, Inglewood Memorial Pk., Pine View sec., dble. internment, $700. 213-326-8429.

Bicycle, Peugeot, folding-type, 2-spd., many access., $65. 213-375-5760.

Motorcycle, 1971 Yamaha, 175 cc, still under warranty, $550. 714-521-0073.

Exercise Bicycle, manual, $5. 714-830-3048.

Motorcycle, Honda, 150 cc, elec. start, $175. 213-328-6662.

Motorcycle, 1968 Greeves Challenger, 250 cc, extras, $475. 213-532-7175.

Bedroom Set, antique green, incl. triple dresser w/mirror, 2 night stands, wicker chair, $200. 213-371-7318.

Sofa, green tweed, $40. 213-534-2951.

Tent Trailer, 1970 Puma, water, elec. hookup, bltins, many extras, sleeps 6, $1,195. 714-847-5439.

Wanted to Buy

Mini Bike or small Honda. 213-327-4356.

Bicycle, tandem. 213-371-8879.

VW Camper Tent. 213-322-3823.

Violin, full size for intermediate student. 213-374-2188.

Stereo Receiver. 213-679-7378.

Outboard Motor, 5-10 h.p. w/fwd-neutral-rev., approx. $100. 805-497-2823.

Tickets, 2, to the Pageant of the Masters. 213-679-6982.

For Trade

Dryer, Norge Delux, gas, 1 yr. old, bronze, trade for comparable elec. dryer. 213-677-6233.

Free (To Be Given Away)

Sheep Dog, Australian, 2 yrs. old, b&w, male, needs lge. yd. 213-675-2677.

Pup, weimaraner, male, gray, AKC reg., 18 mos. old. 213-320-6685.

Pups, toy fox terrier. 213-374-5133.

Pups, born June 11, brown & black ones. 213-541-1423.

Kittens, 3, red. 714-524-1376.

Rentals Offered

Home, Lake Arrowhead, 3-bdrm., 2 baths, bch. club privileges, $140 wk., $60 w/end. 213-377-3817.

Rentals Offered

Apt, 2-bdrm., unfurn., gar., refrig., stove, cpts., dps., $135 mo. 213-323-0546.

Cabins, Lake Gregory & Crestline, reserve early, sleeps 6, $65 wk. 213-821-8150.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

House, Bass Lake, $150 wk., $45 w/end. 213-374-3702.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Condominium, Palm Springs area, 2-bdrm., 1 bath, studio apt., air cond., well furn., pool, $60 w/end, 3 days, $100 wk. 213-327-8994, 213-324-5709. G

House, 4-bdrm., family rm., P. V. Pen., fenced front & back yds., lease, $395 mo. 213-377-8969.

Cottage, Ocean Bch., San Diego, near Mission Bay, $75 wk. 714-826-2007.

Cabin, Lake Arrowhead, north shore, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

Rentals Wanted

Cabin, Idyllwild area, 5 days to a wk., for family of 5. 213-325-2952.

Child Care

Babysitting, part time, my home, Inglewood area, days preferred. 213-671-1652.

Personals

Ride Wanted, 7 a.m.-3:42 p.m., Magnolia & Wardlow, Long Beach, Aircraft ext. 4219, 213-424-4891.

Ride Wanted, 7 a.m.-3:42 p.m., Imperial Hwy. & Doty Ave. or Prairie Ave. & 112 St., Inglewood, Aircraft ext. 4716, 213-677-6307.

Ride Wanted, 8 a.m.-4:45 p.m., vicinity of Balboa & Rinaldi, Granada Hills, Aircraft ext. 1708, 213-360-8800.

Need ride home, 4:45 p.m., Mon.-Thurs., to Magnolia on Orangethorpe, will help pay for gas. Electro-Mech. ext. 1106, 714-870-9658.

Thanks to all my friends at Northrop for the luncheon, gifts & party upon my retirement. CHARLIE HUTCHESON.

Mature Woman wanted as occasional companion for elderly lady in pvt. home, meals & lodging w/reasonable stipend in pymt., call 213-377-5936.

I sincerely thank all of my friends & coworkers for the cards, flowers & phone calls during my illness. BEULAH PRIEST.

I wish to extend many thanks to all Northrop personnel who have helped me during the past 12 mos. while u/going a work experience training program. I have many memories to take back to Australia with me. K. WHEATLEY.

To all my friends & associates from the past 29½ yrs., I say thanks, good luck & goodbye. I've retired. BOB LIEBER.

To all our friends at Northrop, our deepest appreciation for the many kind thoughts & beautiful flowers. SYLVIA RAGATZ & FAMILY.

I wish to thank all my friends at Northrop for the flowers & cards during the illness & loss of my mother. OPAL BRIGGS.

We wish to thank all of you for the special help you gave us after Harry's death. KAY & GARY WIRTH.

I wish to express my appreciation for the cards & flowers sent in regard to the recent passing away of my father. JOHN STETTLER.

Boys, ages 7-15, wishing info. concerning enrollment in A.Y.S.O. soccer this season, call 213-675-6233.

Fly & share expenses from Antelope Valley to Hawthorne, daily, 7:42 a.m.-4:42 p.m. 805-948-7424.

We wish to express our heartfelt appreciation & thanks to our many friends, coworkers & NRC for sharing with us the loss of our father, Carl A. Hannum. HELEN KELLY & BOB HANNUM.

I wish to thank my many Northrop friends for the gifts, cards, & good wishes extended to me upon my retirement. MARION FLOWERS.

My sincerest thanks to my many friends for the luncheon & gifts on the occasion of my retirement. LOUISE T. McCULLOCH.

Thank you very much for your donation & all your kindness. THELMA JOHOVICH, JAY & KAREN.

I wish to thank the many friends who participated in the party & gifts upon my retirement. LASSITER B. KEY.

For Sale or Trade

Volkswagen, 1971 sunroof, 3,000 mi., $2,100 or trade for good transportation car. 213-542-7646.

Pickup, 1963 GMC, ¾-ton, 1964 eng. & parts, $900 or trade for VW. 213-370-6896.

Sailboat, 13′ O'Day, American trailer, access., $650 or trade for pickup truck, van or car, will pay difference. 213-837-1625.

Motorcycle, 1967 Honda 305 Scrambler, $350 or trade plus cash for good pickup. 213-378-8798.

School Study Helps on Job

John Borland's school homework, besides qualifying him for a degree cum laude from Long Beach State, may also give the Electro-Mechanical Division an additional management tool.

Mr. Borland's work was a study called "Span of Management." It was based upon a study of management procedures at the division and data acquired from questionnaires submitted to managers ranging from the general manager to first line supervisors.

"I based the study upon our division because I wanted to get some practical benefit beyond just satisfying course requirements," Mr. Borland said.

The practical benefit came after Mr. Borland's study was reviewed by Frank W. Lynch, general manager, and R. L. Gibney, vice president, Administration and Finance.

"We were very impressed by Mr. Borland's study," Mr. Gibney said. "As a result we hope to institute his methodology and conduct a similar study at the division every two years. In addition, we will take parts of his paper for further study as to means of implementing his conclusions in our management system."

Mr. Borland's graduation ended work for a degree that began in 1938 at the Eastern Illinois State University.

Still on Time

ARTHUR RAIDY, machine rebuilder, with Plant Engineering, was never late for work a single time during his almost 20 years with Northrop. He kept his record by also being on time for the going-away potluck dinner given him by his co-workers when he retired July 30. Here Sefie Garcia, right, and Betty Schulz, left, urge him to eat heartily.

ZERO DEFECTS AWARD PRESENTED TO DIVISION
Northrop, Lockheed and Navy personnel present at the Zero Defects award presentation are, from left, R. C. Dix, C. M. Hargrove, Don McInnis, Dr. D. A. Stuart, T. A. Jensen, E. A. Dorko, Diane Barlewort, C. C. Nelson, Frank Bowman, J. A. Reickert, F. W. McNabb, L. D. Daniels, J. H. Sims, Lt. A. D. Harney, W. J. Nicol, Ensign R. A. Miller, Ed Bress, and Harry Nuffer.

MTRE Work Earns Zero Defects Award

The Electro-Mechanical Division has again received a Zero Defects Award from the Lockheed Missiles and Space Company. The division previously received the award in 1965 and 1967.

The award was presented by Dr. D. A. Stuart, vice president and general manager of the Missile Systems Division, Sunnyvale, in a ceremony at Anaheim. Don A. McInnis accepted the award on behalf of Frank W. Lynch, general manager, and all personnel who participated in the Polaris/Poseidon program.

The citation said that "between November 1970 and March 1971 the division converted and delivered three MTRE MK 7 MOD 2 systems without defects and on schedule. This was an outstanding example of quality performance and a significant contribution to the Poseidon program."

The MTRE (Missile Test and Readiness Equipment) was developed by the division to check the readiness of Poseidon missiles carried on U.S. Navy nuclear submarines. The system consists of six hinged doors mounted on posts in the Missile Control compartment aboard the submarine. On the doors are mounted 1,273 modules, 39,463 components, and 158 cables—all interconnected by 201,821 electrical connections.

The Polaris/Poseidon Program is under the management of Ralph C. Dix.

Mgt. Club Hears Narcotics Expert

A comprehensive survey of narcotics and their danger was provided members of the Management Club at the July meeting. The speaker was Frank Larkworthy of the Federal Bureau of Narcotics.

Supplementing Mr. Larkworthy's speech was an informative narcotics display arranged by Anaheim Police Chief David B. Michel. The display was set up and explained by Detectives Robert A. Winkler and John R. Kalbo, Anaheim Police Department Narcotics Detail.

John Burke, club president, reminded members that the next dinner meeting will be in the Carousel Room of the Newporter Inn on Sept. 23. He also asked members to reserve Nov. 20 for the annual Management Club dinner dance in the Monte Carlo room at the Newporter Inn.

WRITES STORY

"The Saga of the Bessie Brady," a true story by Northrop's Bert Millspaugh, was the lead story in the July 1971 issue of Desert Magazine.

The article tells the story of a steamboat, Bessie Brady, which carried charcoal and silver-lead ingots from mines in the Inyo Mountains to the town of Cartago where the cargo was then freighted 200 miles to Los Angeles. The boat's route was over Lake Owens. The lake is now a dry salt flat.

The Bessie Brady, according to Mr. Millspaugh's research, sailed from 1872 until 1880.

DCASD Summer Hires Visit

SEVEN YOUNG PEOPLE, working with the Defense Contract Administration Services District-Anaheim under the summer hires employment program, visited the Electro-Mechanical Division for an orientation to learn how DCASD works with a government contractor. They were accompanied by Col. R. E. Griffin, USAF, commander, DCASD-Anaheim, and Enid Jones, DCAS contract administrator. The group was shown through the facility by Don McInnis and Charles Hargrove. The visitors, shown above, from left, are Dora Conde, Kevin Portz, Maria Solorio, Gloria Armenta, Robin Haerberle, Colonel Griffin, Joan Wegner, Don McInnis, Enid Jones, Charles Hargrove and George Mulak. Five of the visitors qualified for employment under the Summer Aides program, and the other two, Joan Wegner and Kevin Portz, are college students who qualified for summer employment through the Civil Service Register.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California Vol. 29, No. 16 September 15, 1971

ARNOLD J. MONREAL, right, receives a suggestion award from Dave Harvey for money saving idea that eliminated the need to send parts to a vendor for hand anodizing of small areas. Mr. Monreal is assigned to Production Control.

NEW CONCEPT

Cafeteria Slated to Open

A completely redesigned cafeteria is scheduled to open later this month to replace the former operation which closed Aug. 27.

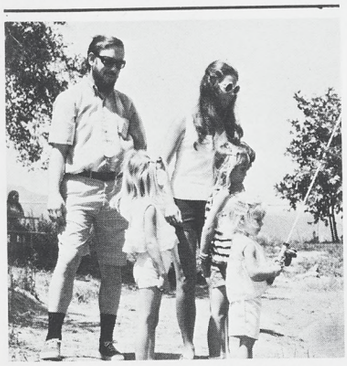
The new cafeteria will be operated by Servomation Corp. which operates similar facilities at the Ontario Speedway, Litton Industries, Crown Zellerbach and other major companies.

The cafeteria design is based upon a new concept in industrial service which has been gaining acceptance. It is semi-self service with prepared foods displayed in hot and cold buffet cabinets. Also a micro-wave oven is available for heating those foods which cannot conveniently be kept warm in display units.

A hostess will be on duty at all times with two present during peak periods. The displays will be arranged to eliminate lines, providing more rapid and convenient service.

In addition to the food displays, there will be a few vending machines to supplement the service. These will be mainly for candy, cigarettes and the like. Coffee will be supplied from urns.

Paul L. Faranda, manager, Industrial Relations, said the new arrangements would offer an increased variety of foods, including a minimum of three entrees compared with the two available under the former system. In addition, the building will be completely redecorated.



FISH DERBY CHAMP Toni Sandeki, striped jacket, coaches her sister, Angie, but despite advice from father and mother and sister Sheri, Angie failed to break Toni's record, 7½-inch catch, at the NRC picnic. For more picnic pictures, see page 6.

ALEXANDER NAMED TISEO MANAGER

Newton Alexander has succeeded Jaime Oaxaca as TISEO (Target Identification System, Electro-Optical) program manager.

Mr. Oaxaca has left to participate in the 1970-71 Stanford-Sloan Fellowship Program.

Mr. Alexander joined Northrop in 1965 and was with the Electronics Division's Navigation Department before assuming his TISEO duties.

In this position he will report to Ralph Dix, program manager, Automatic Test Systems/Electro-Optical Systems Program office.

Environment Impact Study Made for St. Louis Airport

The Electro-Mechanical Division's Environmental Systems group has completed preliminary environmental and ecological impact studies as part of initial site selection analysis of 11 candidate sites for a new airport to serve Metropolitan St. Louis, Missouri.

Under recent national environmental and airport acts, no airport may be built or expanded until an environmental and ecological impact study has been made.

The environmental study was conducted under the guidance of Henry W. Wedaa, project manager, as part of the division's subcontract with Northrop Airport Development Corporation which had responsibility for the entire site selection analysis.

Environmental studies include the impact of air pollution, noise analysis, water and waste analysis, possible effect on wildlife and plant life, and the impact on local resources and recreation areas.

In addition to the recently completed environmental ecological study for the proposed St. Louis airport, Mr. Wedaa is also responsible for a similar study for the proposed expansion of Ontario International Airport.

GOBLINS GAMBOL

The local ghosts and goblins will be out in all their colorful finery on Oct. 30 when the NRC sponsors its annual Halloween costume phantom fling.

Duane Baptiste said the Special Events Committee is making plans for a really top event. "The best ever," he said. "We'll have more details later, but it is not too early to mark the date on your calendar."

Ricketts Heads Environmental Activities Here

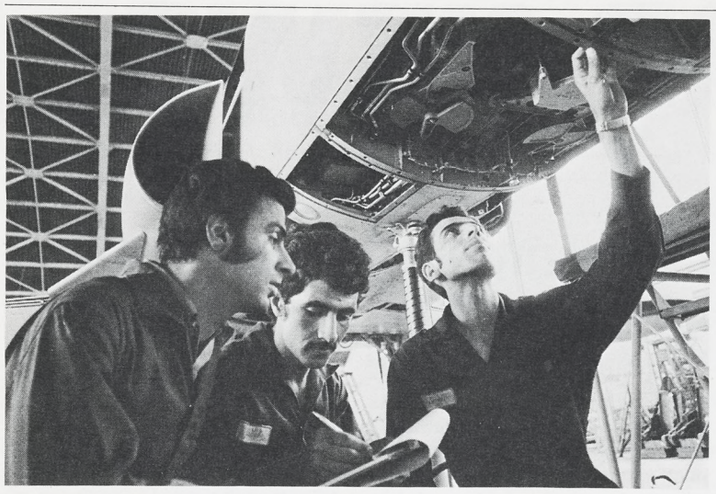
James M. Ricketts, president of Northrop Carolina, Inc., a Northrop subsidiary, reporting to the Electro-Mechanical Division, has returned to Anaheim to assume responsibility for the overall Environmental and Industrial Systems activities of the division, according to Frank W. Lynch, vice president and general manager, Electro-Mechanical Division.

Mr. Ricketts will continue as president of Northrop Carolina. When acting in his environmental capacity, his title will be vice president, Environmental and Industrial Systems.

He will be assisted by R. L. Gibney, vice president, Administration and Finance, who will continue as acting manager, Environmental Systems Department, which includes Northrop's inter-

(See RICKETTS, page 6)

QUEENS OF THE LINKS for the Women's Twilight Golf League's tournament are the teams of Mid Williams and Norma Schrumpf (center and right), who placed first with 39½ games, and Jane Tway and Anna Butcher, first and second from left, who placed second with 36½ games. The 10-week series was played at Santa Ana and Riverside.



FROM LEFT, JEHANGIR KERMANI, ALI AKBAR PAKDEL, HUSHANG SAMIE

Iranian Technicians Earn Promotions in New Firm

Iran Air Craft Industries (IACI) has promoted its first three Iranian technicians—Jehangir Kermani, Ali Akbar Pakdel and Hushang Samie—to technical management slots as dock chiefs.

"The promotions epitomize the development of Iranian technicians as rapidly as training and the expansion of business will permit," said Bob Rolfe, IACI managing director.

IACI, in which Northrop holds a 49 per cent interest, is currently working out of a government hangar at Tehran's Mehrabad International Airport pending completion of company facilities at the same locale, now scheduled for May 1972.

Slated to become one of the major centers between Rome and Tokyo for maintenance, repair and overhaul of aircraft and engines, IACI is expected to employ 1,000 persons by the end of 1973.

Iran's Civil Aviation Training Organization produces trained graduates for Iranian aviation and IACI draws a portion of graduates each year. Dock Chiefs Pakdel and Samie are graduates of the school, while Dock Chief Kermani was trained in the United States.

Dr. Wortman to Study in Poland

Dr. Andrew Wortman, Aircraft Division engineering specialist, has been selected by the National Academy of Sciences for a 12-month research project in Poland.

This special exchange program is sponsored by the academy in the United States and the Polish Academy of Sciences. Dr. Wortman will center his research activities at the Institute for Fundamental Technical Studies in Warsaw.

A native of Poland, Dr. Wortman left there with his family in 1939, living in Russia, Iran, India and England, before coming to the United States in 1951. He completed studies for bachelor and master of science degrees at the University of California at Berkeley and earned his doctorate at UCLA in 1969.

TALKS PROGRESS WITH FULLER CO.

Northrop Corporation and the George A. Fuller Company are currently engaged in discussions regarding the possible acquisition by Northrop of the New York-based firm.

The Fuller firm, privately owned, has for many years been a leading building construction firm with annual sales currently in excess of $150 million a year.

The acquisition is contingent on the Fuller Co. meeting stringent conditions. If consummated, the acquisition would be for cash and would involve no public funding.

INSTRUCTOR

David R. Apodaca, Aircraft Division engineering specialist, will teach a special course in the Metallurgy of Stainless Steel to be offered over a 12-week period, beginning Sept. 22, at a downtown location.

Sponsored by the American Society for Metals, the course costs $40 for members of ASM and $45 for non-members.

'Package' of Spare Parts Rolls Out Quickly to Aid Repairs on Damaged 747

A highly successful team effort has helped Northrop put together and ship, ahead of schedule, one of the largest "packages" of spare parts ever assembled for a single aircraft.

That aircraft, Pan Am's first 747, was extensively damaged in a mishap July 30 at San Francisco International Airport. It is now being repaired in an around-the-clock operation.

Two key factors figured prominently in the successful effort.

One is the mutual respect and confidence shared by Northrop and the Boeing Company on the total 747 Program. The other is the outstanding job performed by Northrop Aircraft Division personnel in Program Management, Spares Management, Engineering, Manufacturing and Planning organizations.

As Boeing and Pan Am discussed repair operations for the 747 and accident investigators studied the mishap, Northrop personnel moved quickly to analyze the damage reports. From these reports came a detailed list of parts and assemblies Northrop felt were necessary for repairs. Boeing quickly verified these findings.

Thus, when the official work go-ahead on August 17 was received, Northrop had already commenced action. On Saturday, Aug. 21, the first shipment of repair parts was dispatched directly to San Francisco. Subsequent shipments followed in short order so that by the end of August most of the needed items were on their way or on hand at the repair site.

Since initial damage reports were necessarily incomplete, Northrop is now working under an open purchase order to add additional items, as discovered, to finish the job.

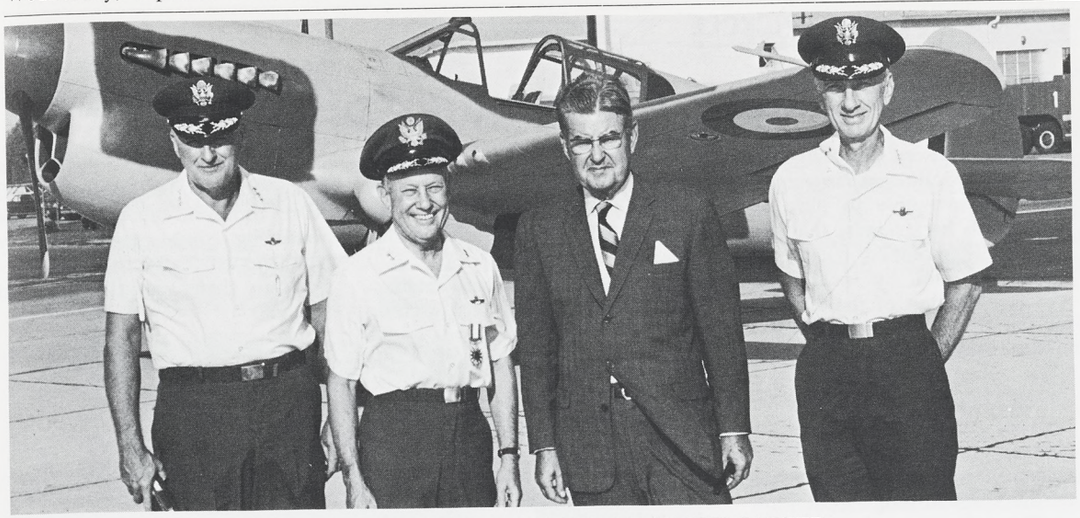
More than 600 individual parts and items have been included in shipments, ranging from nuts and bolts hardware to complete assemblies, like a 3,600-pound lower bonnet assembly for section 46 of the Boeing 747.

Northrop preliminary detailed planning made possible the diversion of regular production parts and assemblies to the hurry-up repair requirements, with subsequent schedule adjustments making up for the diverted systems.

Many Northrop employees played a direct part in the dispatching of the spare items in addition to the Aircraft Division personnel. Examples include wing-to-body fairings by Ventura, floor beams by Electro-Mechanical, and floor panels by Northrop Pacific. Coordination, planning and shipping involved still others.

Plaudits from many sources have been received for the prompt and thorough assistance Northrop has provided in the program to date.

NORTHROP MEMBERS of the F-5 1,000-Hour Club hold models presented by Aircraft Division Vice President Milt Kuska. Hank Chouteau, center, is Northrop's chief test pilot. Donald Crane is retired USAF pilot now in Current Aircraft Systems Requirements. He helped set up F-5 training operation at Williams AFB in 1964, served there as instructor pilot and in South Vietnam as an F-5 advisor.



JOHN R. ALISON ENDS 35-YEAR MILITARY CAREER
From Left, Lt. Gen. Paul K. Carlton, Maj. Gen. John R. Alison, Gen. Curtis E. LeMay (Ret.), Gen. Bruce K. Holloway. USAF photo.

PARADE, FLYOVER

John Alison Caps Long Military Career

A distinguished military career spanning 35 years was culminated last month during ceremonies at March Air Force Base marking the retirement of Maj. Gen. John R. Alison.

Gen. Bruce K. Holloway, commander, Strategic Air Command, presented General Alison the Distinguished Service Medal, the nation's highest peacetime decoration during the event which included a parade and flyover of military aircraft, including a World War II P-40.

The medal recognized that General Alison "distinguished himself as mobilization assistant to the commander, Fifteenth Air Force, from Sept. 1, 1960 to May 23, 1971."

General Alison, who joined Northrop in 1953, is Northrop Corporation vice president for Customer Relations.

In 1937, General Alison entered the Army Air Corps and was commissioned a second lieutenant after graduation from flying school.

During World War II, he served in England, Russia (training Russian pilots), the Southwest Pacific and the China-Burma-India Theater. In the latter, he flew with Gen. Claire Chennault's famed "Flying Tigers," earning recognition as an "ace" for destroying seven enemy aircraft.

General Alison left active duty in 1946 with the rank of colonel. Continuing as a reservist, he earned his first star in 1957 and his second in 1959.

In civilian life, General Alison served as assistant secretary of Commerce for Air, as a member of the National Advisory Committee for Aeronautics and as a consultant to the National Security Resources Board on the use of commercial aircraft in time of war.

Finals Near for NMS Competition

Semi-finalists in the National Merit Scholarship Corporation competition to select 1972 Merit Scholars will be named for the first time next week (Sept. 22).

Among the select group—there are about 15,000 semi-finalists from approximately 700,000 students who entered the competition 18 months ago—will be sons and daughters of Northrop employees.

Northrop is again supporting the program by making scholarships available for presentations to sons and daughters of its employees. However, Northrop plays no role in the selection process which is carried out by the non-profit corporation.

Semi-finalists named must take the Scholastic Aptitude Test of the College Entrance Examination Board no later than Nov. 6. And they must supply personal information and receive the endorsement of their school principal.

RECIPES ANYONE?

Friday (Sept. 17) is the deadline for submitting your favorite recipe for possible inclusion in a Northrop Cookbook.

A group of Electronics Division women employees plan to publish the cookbook this fall and sell it for a nominal amount. Proceeds will be used for charitable purposes.

Those interested in taking part are invited to send their favorite recipe, along with their name and division affiliation, to COOKBOOK, 170/62.

NRC NIGHT NEAR

Final calls for families interested in taking part in NRC Night at Magic Mountain are being sounded this week. The date is Sept. 25 starting at 7 p.m.

Tickets, available at all Personnel Activities outlets, sell for $4 and entitle the holder to free parking, admission and unlimited use of all facilities, plus an opportunity to see top name entertainment at the new fun center. Bobby Darin will head this show.

Reprints of Articles Are Available

Limited quantities of reprints of three articles about Northrop and its products are available to personnel through Corporate Public Relations and Advertising, Century City.

Robert R. Ropelewski has written an article titled "F-5E Keyed to Agility for Combat," which appeared in the July 12 issue of Aviation Week and Space Technology.

The article covers in detail many of the features of the F-5E and its capabilities, including planned flight test schedules.

The August issue of Cockpit magazine featured an article on Northrop, its beginning, history, unique methods of planning and marketing and the success features of key products.

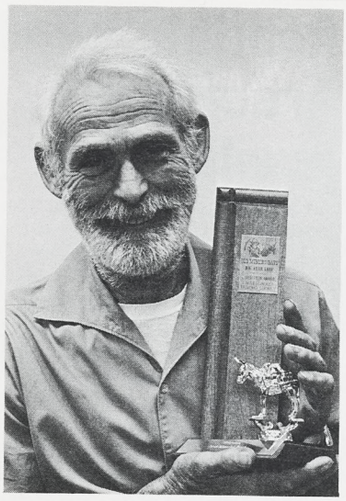
Pilot's Viewpoint

Captains David R. Croft and Robert W. Wickman co-authored an Air Force Magazine article titled "I Fly The T-38" which appeared in August. Written from an instructor pilot's viewpoint, the article traces the uses of and success attained with the T-38.

Some indication of the two Air Force pilots' respect for the much-used supersonic trainer is evidenced in the final paragraph which reads:

"It's a matter of pride to know you are flying one of the best airplanes in the world—a bird that's beautiful, clean, white, sleek, aesthetically pleasing. It's an airplane that demands respect and instills pride. You don't mind telling people, 'I fly the T-38'."

AV WEEK WRITER GETS F-5 CHECK-OUT PLAQUE
From left, Lt. Col. Roy Holbrook, Robert Ropelewski, Lt. Col. John Potter.



SCOTTY SCOTT, TROPHY

Scotty Scott Is Old Miners' Day Whisker Champ

"I won by a whisker," said Charles "Scotty" Scott, as he displayed the trophy awarded him for having "The Most Miserable Beard" in the Old Miners' Day celebration at Big Bear Lake.

This is Scotty's third win in the Big Bear frontier celebrations. In 1961 and again in 1969 he took trophies for having the "Most Rustic Old Miner's Beard." A "rustic" beard, he explained, is one that has never been trimmed, but has been permitted to "grow wild."

Mr. Scott is a cabinet maker at the Torrance facility of the Aircraft Division and has been with Northrop about 15 years.

DESIGN SPECIAL TRICYCLE

Northrop Men Aid Handicapped Girl

Anna Johnson, a young cerebral palsy victim residing in Cypress, is now able to play outdoors with her friends, thanks to a specially modified tricycle designed and built by Jack Meyers and Bill Brenton of the Electronics Division.

The vehicle is a pedal driven trike, which is similar to a three-wheel bicycle. This was chosen because Anna's limited muscular control would not lend itself to a tricycle where pedals are a part of the front turning wheel.

The trike is equipped with a seat with a fairly high back and safety belt. Restraints have been placed on the pedals to help the youngster keep her feet on them. The handlebars are raised along with the seat to make them more suitable for her size.

"The challenge of learning to ride the trike was Anna's difficulty in gripping the handlebars," Mr. Meyers said. "Once this was accomplished, she had little trouble mastering the operation of the machine and finds it easy to operate now."

Family Friend

Mr. Meyers, who is now assigned to Electronics Division's Northrop Dakota, Inc. facility in New Town, N.D., first became interested in the little girl through his daughter, who is a friend of Anna's older sister.

He learned that Anna's parents discovered she was a victim of cerebral palsy when she was about six months old. At that age she was unable to sit up or hold her head up. Since that time, Anna has learned how to do many simple tasks, and is presently learning to walk in a normal manner.

Besides the personal satisfaction Messrs. Meyers and Brenton have received from seeing little Anna able to be outdoors with other children, there is now the possibility that other similarly handicapped children can benefit from their specially designed tricycle.

OUTDOOR FUN
Anna Johnson on her specially modified tricycle.

Joe Shaffer Is Operating a 'Rest Home' For His Wild Friends From The Desert

Joe Shaffer's zoo is not a real menagerie, he says. It is a rest camp where his friends from the desert can come and spend a few days before they are returned to their natural habitat.

Mr. Shaffer, foreman in Electro-Optical Assembly at the Electro-Mechanical Division, brings back desert creatures to his home, keeps them a few weeks and then takes them back to the desert.

He began his round-robin zoo some years ago when he brought back a snake and a lizard so he could study and identify them.

Knowing that some species do not live long in captivity, he was careful to take them back in plenty of time.

From that beginning, he has continued his round-robin zoo and always has a number of kangaroo rats, rabbits, snakes and birds on hand.

Originally he detested the desert, considering it hot, dry and miles and miles of nothing. He only went there in order to find a place to shoot. Then the desert "grew" on him and at the same time he became interested in desert creatures.

He began trapping them so he could study them more closely. "I won't kill one," he said. "The only animal I ever shot was a poor coyote and I've felt bad about it ever since."

Capturing desert animals is not difficult, he reports. "There are areas of the desert so tame that lizards will crawl on your arm, rabbits will come right up and look at you, and birds will land on your shirt and peck at the buttons."

Patience Does It

There are some tricks to catching some of the animals. With lizards Mr. Shaffer just puts down his hands and waits. After a while, when he doesn't harm them, they crawl right up his arm.

King snakes can be tamed by letting them coil about your arm. "As soon as they begin to feel the heat of your body, they tame down," he said. "Originally I was very much afraid of snakes. Then one day I decided that was a dumb thing and I went out of my way to become acquainted with them. Once you get to know snakes, they aren't bad creatures at all.

"In fact, that is true of all desert varmints. They want to be friends if you'll just let them."

JOE SHAFFER AND ONE OF HIS FRIENDS

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

MGA 1600, 1957, needs body & trans. work, $150. 213-326-7528.

Triumph, 1968 fastback, GT-6, 4-spd., $1,475. 213-378-8892.

Datsun 1600, 1968, h/top convt., radio, new tires & clutch, $1,350. 213-379-1839.

Dune Buggy, kit blt., new top & doors, $1,000. 213-675-4892.

Fiat, 1968 850 cpe., 4-spd., radio, 33,000 mi., $1,025. 714-778-5828.

Triumph, 1970 M/C Tiger 650, 3,300 mi., $1,050. 213-329-0086.

Chevrolet, 1965 Chev. Impala S.S., p/s, r/h, $895. 213-831-3045.

Toyota, 1969 Corona, auto. trans., fact. air, $1,550. 714-897-2007.

Mustang, 1969 Grande, 2-dr. h/top, r/h, $1,500. 213-371-6662.

Opel, 1969 GT-1900, r/h, p/b, radial tires, $2,150. 213-371-7197.

Volvo P-1800, 1962 sport coupe, AM/FM, $850. 213-329-1705.

Mustang, 1965, stick shift, $850. 213-423-5690.

Ford, 1964 Econoline, 6 cyl., lge. eng., $750. 213-375-6458.

Truck, 1956 Chev. & camper, $275. 213-378-3219.

Volkswagen, 1964, radio, $675. 213-675-2331.

Datsun, 1969 sedan, 17,000 mi., $1,350. 213-372-5367.

Volkswagen, 1968, r/h, new whitewall tires, $1,100. 213-644-5463.

Buick, 1969 Riviera, 48,000 miles, full power, a/c, $2,750. Box 1601.

Volkswagen bus-camper, 1965, Porsche powered, wood paneling, $1,295. 213-821-4180.

Edsel, 1959 Range, $750. 213-327-6918.

Chevelle, 1967 SS 396, 4-spd., $1,200. 213-498-3013.

Chevrolet, 1969 Caprice, h/top cpe., many extras, $2,450. 213-675-1842.

Mustang, 1965, V-8, auto. trans., a/c, p/s, radio, 43,000 mi., $950. 213-378-2127.

El Camino, 1964, 283 cu. in., 4-spd. trans., 4 bbl. Holly carb., recent o/haul, $775. 805-495-5368.

Volkswagen, 1959 dune buggy, $550. 213-830-4832.

Volkswagen, 1970 squareback, auto., $2,190. 714-847-5439.

Miscellaneous For Sale

Mattress, king size, $40. 213-823-5526.

Rug, 12'x20' nylon hi-lo, avocado, used 1 yr., $80. 213-569-6543.

Acreage, 5 acres, on Hwy. 18, Apple Valley, grant deed, $500 dn., 6.5% int., $50 mo., $5,500. 213-327-4356.

Stereo, Motorola, detach. spkrs., auto., long play or 45 records, $50. 213-676-3365.

Trailer Hitch, for 1963 Buick Skylark or Special, $4.50. 213-675-2005.

Acreage, 5 acres, adjacent to new fwy., Antelope Valley, 10% dn., $18,000. 213-424-7351.

Air Cooler, Thermador evaporative-type mod. TCF-85P, $15. 213-679-2864.

Chord Organ, Estey elec., 24 chords, 3 octaves, $60. 213-675-6020.

Tent Trailer, Sears, 8'x13' zip on room w/ floor, $350. 213-371-8879.

Sewing Machine, Singer uphol-type, walking foot & table, $150. 213-675-2329.

Air Conditioner, window-type, 12,000 BTU/hr., $70. 714-524-3591.

Motorcycle, 1968 CL 350 Honda Scrambler, $495. 213-329-2842.

Mobile Home, 1970 Biltmore, 12' x 52' expanded liv. rm., $500 dn., & take over bal., $6,000. Box 1602.

Pups, min. Dachshund, AKC, dk. reddish brown, $60 ea. 213-883-4471.

Jukebox, Wurlitzer, stereo & records, $350. 213-371-3079.

Kitten, Burmese, male, champagne color, w/ papers, $75. 213-377-9414.

Living Room Set, Chippendale, $500. 714-531-4958.

Range, O'Keefe & Merritt, gas, 4-burner, coppertone, $75. 213-532-1408.

Surfboard, Soul 7' 6" x 22½", $35. 213-375-0785.

Surfboard, 9', $15. 213-377-5897.

Miscellaneous For Sale

Movie Camera, Bolex, C8 w/master splicer, & light finder, $40. 213-674-8610.

Drum Set, 4-pc. w/hi hat, $85. 714-897-9334.

Home, Palos Verdes, 4-bdrm., 3 baths, office, study & hobby rm., 3,100 sq. ft., 5 min. to fwy., $82,500. 213-831-0453.

Stove, 4-burner, 30", gas, 1 yr. old, $75. 714-531-3368.

TV, 19" b&w portable, Packard Bell w/stand, access., $42.50. 213-376-4831.

Rear End, Austin-Healey posi-traction, 3.90 ratio, $140. 714-968-4573.

Carbine, customized military 8mm Mannlicher Mauser, 20 rds. new hunting ammo, 100 rd. empty brass, $75. 213-327-4585.

Chair, Morris, circa 1895, $145. 213-329-6039.

Chain, ⅜", 65' in 10' lengths, $15. 213-325-3675.

House, 4-bdrm., 2 baths, lge. fam. & living rms., f/place, cpt., bltins, dble. car gar., fenced yd., $43,900. 213-833-1970.

Motorcycle, 1971 Yamaha Mini Enduro, $250. 213-532-7175.

Boat, 21' Trojan Lapstrake, 170 h.p. i./o. 4-wheel tandem trailer, many extras, $1,500. 213-379-1031.

Air Conditioner, for 1967 Volkswagen, $75. 714-528-0379.

Motorcycle, 1967 Yamaha, 100 cc Trailmaster, equipped for street or dirt, $225. 213-372-6916.

Swim Pool, 12'x3' Doughboy, all access., cover, $30. 213-596-9748.

Tires, 2 Goodyear polyglas, size L-78-15, $20. 213-823-8694.

Carpeting, red, pebbletex, 8 x 10, $25. 213-343-7880.

Acreage, 5 acres, California City, $8,950. 213-830-5777.

Dresser, 6-drwr., walnut finish, laminated, $15. 213-323-6748.

Dog Basket, med., $2. 714-830-3048.

TV, Zenith 19", portable w/stand, $35. 213-831-6882.

Washer, w/dryer, elec., $100. 213-370-1314.

Motorcycle, 1970 Honda Trail 90, $300. 213-378-4422.

Horse, Arabian mare, jumper, 6 yrs. old, 14 hands, $500. 714-549-0436.

Motorcycle, 1965 Honda 160, knobby tires, $150. 213-329-3593.

Tape Deck, Muntz 4 & 8-track, stereo, converter, 2 spkrs., over 25 tapes, $75. 213-291-5280.

Pups, AKC tiny toy poodle, apricot, 7 wks. old, $125. 213-596-3618.

Surfboard, Rick, 7' 8", $50. 213-679-6610.

Cots, Sears, 2 sets, use as single or bunk beds, $15 pr. 213-323-7171.

Radiotelephone, marine VHF, 35 w., $275. 213-322-6655.

Rifle, .222 cal. Rem. w/scope, 50 rnds. ammo, extra brass, $100. 714-828-7873.

Dining Table, antique, round, oak, 3 leaves, $145. 213-375-9340.

Motorcycle, 1969 Hondo 90 Motosport cam, big bore, street access., many extras, $250. 213-323-6456.

Slide Projector, Argus 500 Electromatic, 35mm, 100 Airequipt mags., 3 carrying cases, $50. 213-541-2710.

Wiglet, 100% human hair cascade, light ash brown, $7. 213-865-2724.

Pups, AKC miniature Dachshund, 9 wks. old, $75. 805-483-0594.

Motorcycle, 1970 Suzuki 90, 1,300 mi., $300. 213-675-7982.

Tires, 4 Union 4 Star White, s/wall, 6.78 x 14, 4-ply belted, used 1,000 mi., $140. 213-295-9997.

Exacta, VX 1000 35mm sys., 5 lenses, D.T. bellows, 2 S.M. lenses, pro case, strobe, extras, $350. 213-835-3869.

Dining Table & 6 chairs, French provincial, $150. 213-644-7981.

Vacuum Cleaner, Universal, canister, $10. 213-534-0253.

Radio Control Set, model airplane-type, Hallco 103, 3 channels, $35. 213-377-6435.

Boat, 1970 Evinrude 17' all-purpose, 155 h.p. Buick V-6, OMC dr., trailer, bait tank, $3,595. 213-325-5859.

Luggage Carrier, enc. w/clamps, 4' x 6', $20. 213-675-1616.

Land Camera, Polaroid, swinger mod. 20, $5. 213-374-8289.

Records, 25, 33's, 45's, 78's, $8.50. 213-378-1863.

Houses, 2, 2-bdrm. ea., on 1 lot, close to Northrop, completely fenced, $140 monthly pymts. if existing 6% loan is assumed, V.A. or FHA, $33,000. 213-675-6016.

Range, elec., Westinghouse Continental, eye-level oven w/glass door, $100. 213-675-0788.

Stroller, & crib, $18. 213-679-1879.

Surfboard, 9' 9" Hansen, $25. 805-495-3153.

Laredo AFB Pilot Training Wing Goes Home With Three Top Awards

The 3640th Pilot Training Wing of Laredo AFB, Tex., has won the USAF Outstanding Unit Award, the ATC Flying Hour Honor trophy and an Award of Honor from the National Safety Council.

Presentation of the honors came at a recent Commanders' Conference held by Air Training Command.

The unit award recognized "exceptionally meritorious service" in support of the USAF training mission. The 3640th graduated 900 pilots, flew 221,-210 hours and logged 444,879 landings during the two-year award period.

The Flying Hour Honor was for completing 100,000 flying hours without a major or minor accident. The NSC award recognized a 43.8 per cent reduction in composite ground accident rates during the calendar year.

The 3640th flies Northrop-built T-38 trainers for training student pilots.

POLICE TOUR

As a courtesy to Police Commissioner Marguerite Justice, the Public Relations Department of the Los Angeles Police Department conducted a special four-hour tour for Northrop Corporation employees last Saturday. Tours are normally conducted during the week only.

Mrs. Justice is the wife of William H. Justice, Jr., Northrop Data Processing.

Northrop visitors saw the full scope of police activities in action, including dispatching, fingerprinting, plus a look at a detention cell.

NORTHROP NEWS
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Miscellaneous For Sale

Shotgun, 16 ga. pump, adjust. choke, J. C. Higgins, case, $40. 213-670-0852.

Hemi, 392 cu. in., complete w/3-spd. std. trans., $150. 213-641-7080.

Mobile Home, 10x55 w/7x22 expando, 1965 Skyline, carport, skirts, awning, tool shed, air coolers, in adult park, Escondido, $3,800. 213-378-0501.

Kitchen Set, 5 pcs., white mica, $17. 213-674-0852.

End Tables, solid maple, $40 ea. 213-675-3996.

Cement Mixer, Sears elec., wheelbarrow-type, 1⅓ cu. ft. mix cap., $80. 213-377-5853.

Gyrocopter Glider, ready for eng., 2 5-gal. tanks, blades, whl. covers, $800. 805-947-1026.

Condominium, 3-bdrm., 2½ baths, rec. room, 2 pools, Rolling Hills area, $34,500. 213-547-2716.

Mobile Home, 10' x 55', expanded liv. rm., 13' x 18', awnings, cooler, 5' x 7' redwood cab. storage, in adult park, $5,500. 213-320-2512.

Bicycle, girl's 20", $10. 213-645-7972.

Motorcycle, 1965 Yamaha, 80cc, full dirt setup, GYT kit, extra parts, $200. 213-425-7243.

Fall, frosted, 100% human hair, $25. 213-377-2631.

Wanted to Buy

Freezer, upright, thin-wall construction, in good working cond., reasonable. 714-546-6714.

Hardtop for 1957 Triumph TR-3. 714-635-7975.

Drafting Machine & table. 714-968-1539.

Free (To Be Given Away)

Kittens. 213-545-6262.

Pups, Toy Terrier/Pug, born July 26. 213-375-8460.

Rentals Offered

House, near West High, Torrance, 4-bdrm., patio, dble. gar., $340 mo. 213-542-6808.

Condominium, 2-bdrm., Palm Springs vicinity, furn., pool, $60 w/end, $100 wk., 213-327-8994, 213-324-5709.

Cottage, Ocean Bch., San Diego, near Mission Bay, $75 wk. 714-826-2007.

Studio Apt., 2-bdrm., 2½ baths, sub. gar., adult bldg., Inglewood, $225. 213-670-6084.

Garage, at 120th & York, Hawthorne, $10 mo. 213-672-1716.

Rentals Offered

House, Bass Lake, $150 wk., $45 w/end. 213-374-3702.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

House, 3-bdrm., 2 baths, Garden Grove area, $245 mo. 714-968-5343.

Apt, (house unit), lge., 3-bdrm., 2 baths, cpts., dps., closed gar., near Northrop, children ok, $215. 213-675-7938.

Cabin, Moonridge area, Big Bear Lake, sleeps 8, $25 night, $125 wk. 213-375-0493.

House, 2-bdrm., den, pool, 2 baths, sep. service porch, used-brick corner f/place, bltins, cpts., dps., unfurn., rent w/option to buy, in Whittier, $250 mo. 213-943-8187.

Cabin, Lake Arrowhead, 200 feet from lake, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

House, Rolling Hills, 3-bdrm., 2 baths, lease, cpts., dps., bltins, $350 mo. 213-674-8534.

Apt, deluxe, P.V. Dr., Lomita, 4-bdrm., 2½ baths, pool, outdr. maintenance provided, cpts., dps., patio, $315 mo. 213-325-5609.

House, Hollypark, 3-bdrm., family room, 2 baths, $190 mo. 213-349-6854.

Child Care

Child Care offered, daily, 2-yr. old or older, begin Oct. 4. 213-644-9018.

Babysitting, my home, days only, fence yd., 2 blocks from main plant. 213-644-6653.

Personals

Our sincere thanks to all for the kindness & thoughtfulness at the recent passing of my wife, Agnes. TED GARVEY & FAMILY.

I wish to express my thanks to all my friends & co-workers for the retirement party & gifts. VIC BRENEMAN.

I wish to express my thanks to all my Northrop friends & Orgn. 5503 for the retirement send off. ELMER LOHRY.

My sincere thanks to my friends for the party & gifts on the occasion of my retirement. HENRY P. GRIGGS.

Ride wanted, 8 a.m., morning only, from vicinity of Ball Rd. & Walnut, Anaheim, Electro-Mech. ext. 220, 714-774-9286.

Thanks to my Northrop friends for the lovely cards & flowers. JUNE CURTRIGHT.

I wish to thank all my friends for their cards & well wishes during my illness. AL LUCAS.

Pilot Wanted, instrument rated, to join flying group commuting to work between Orange County & Hawthorne airports. 714-544-5297.

IN PAN-AM GAMES

Monetta Driscoll Throws Discus

Monetta Driscoll, daughter of Chuck Driscoll, manufacturing associate, placed sixth as a discus thrower in the recent Pan American Games, at Cali, Colombia.

The Pan American games are the Western Hemisphere warm-ups for the next Olympics.

Miss Driscoll

Miss Driscoll, 19, is rated the number two women's discus thrower in the USA. She also holds the state championships in both California and Arizona. In Arizona she recently set a new state record.

In a recent USA-USSR meet, she placed sixth and was fifth in the USA-Africa field meet in competition with participants from 32 nations.

Linn, Bell to Star At Dinner Dance

Roberta Linn will headline the especially attractive show set for the Electro-Mechanical Management Club's annual dinner dance coming Nov. 20 at the Newporter Inn's Monte Carlo Room.

Miss Linn, who has made over 100 movies with stars ranging from James Cagney to Al Jolson, started as a child actress in Shirley Temple movies. Later she was Lawrence Welk's first Champagne Lady. Today she and her husband, Freddie Bell, who appears with her at the dinner dance show, operate the Inn Place in Newport Beach.

In addition to the Linns, the entertainment includes cocktail music by a trio and dancing from 9 p.m. to 1 a.m. to music by Frank Amos' band.

Free Classes in Boating Available

An invitation for sailors at Northrop to join free boating classes has been extended by Tom Daggett, Systems Engineering, who is secretary of the Santana Power Squadron.

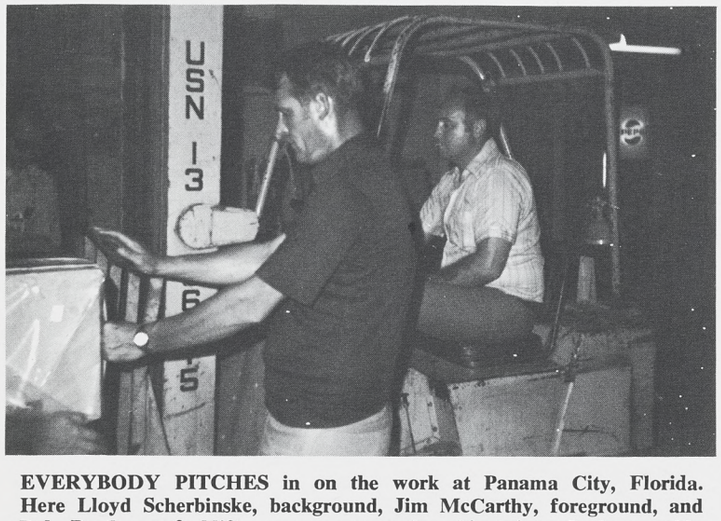
The classes, to be held at five high schools in Orange County, will include basic boating, seamanship, sea safety, rules of the road, and simple navigation.

"Although the United States Power Squadrons, the organization our squadron is affiliated with, was organized in 1912 for owners of power boats, our own squadron is about 50 per cent sail boats," Mr. Daggett said. "The courses the Santana Power Squadron is sponsoring are for both sail and power boat owners.

"Our purpose in these classes is education of the boating public," he added. "The Santana Power Squadron is supplying instructors free to the classes. The only charge will be for any necessary textbooks and some of the high schools may charge a nominal registration fee."

Any Northrop personnel interested may call Mr. Daggett for details on ext. 1232.

A BIG TIME was had by the 600 who attended the NRC Family Picnic. At top left, girls compete in the sack race, and at top right, Candi Boston clowns with Soapy the Clown. Center left, Lori Wahl got daddy Dave to bait her hook for the fishing derby. Next, Maria Moreno signs in Gary Dearen and family at the gate, and below, Sherri Hall and Judy MacMath, front table, and Rose Ponder and Jenny Rollins compete in ping pong tournament.



EVERYBODY PITCHES in on the work at Panama City, Florida. Here Lloyd Scherbinske, background, Jim McCarthy, foreground, and Bob Barth on forklift, move a research cabinet into final assembly area at the Navy's Ocean Simulation Facility. This is one of the support systems being built by the Electro-Mechanical Division for the facility. Mr. Scherbinske is Northrop Quality Assurance representative on-site. Mr. McCarthy is manager of Deep Ocean Engineering, and Mr. Barth is master diver for the OSF.

RICKETTS—Returns to Anaheim

(Continued from page 1)

ests in Olson Laboratories, Inc., and the joint venture, Olson-Horiba, Inc.

Mr. Ricketts' return to Anaheim coincided with his twentieth anniversary with Northrop. All his service has been with the Electro-Mechanical Division and its predecessors.

His first job with Northrop was helping move the division into its present Anaheim location from its temporary location in Lawndale. He was then plant engineer. Later he held "just about every managerial role in the Operations Department" and was manager of Operations when he became president of Northrop Carolina in 1969.

The Environmental and Industrial Systems, which Mr. Ricketts now manages, was developed by the division to permit channeling aerospace expertise and technology into programs.

LAS VEGAS TREK

The new Union Plaza, the world's largest casino, has been selected for the next NRC Las Vegas trek, according to Jack Kinzer, travel commissioner.

"This is a great one," Mr. Kinzer said. "So even though the date is Nov. 12-14, you won't be wrong to start making reservations now. We'll be there three days and two nights, traveling by Greyhound bus as usual."

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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MAC DANIELS, left, receives a suggestion award check from Matt Majka, supervisor, Tool Fabrication. Mr. Daniels suggested freezing sheer pins used for installation changes on the new Hawk wing. The resulting shrinkage eliminated need to use heavy presses for installation. Pins expand again when thawed.

COST REDUCTION

CMIP Savings Top Goals

The Electro-Mechanical Division Cost Management Improvement Program has had a record breaking year, according to Edward Budginas, coordinator.

An examination of government fiscal year 1971 totals reveal a savings of $3,469,000 or 315 per cent of the established savings goal.

Mr. Taylor said that a combination of many factors contributed to all areas of cost reduction. Examples of the improvements suggested include reduction in assigned expenses due to stricter controls, deferring actions and better utilization of inventories and existing equipment.

Data processing costs were reduced as a result of reduction in volume and frequency of reporting as well as through systems combining. An electronic control was designed and installed to modify the static pressure con-

(See CMIP, page 6)

ROBERTA LINN and Freddie Bell, presently appearing at the Inn Place, Newport Beach, will present their floor show at the Electro-Mechanical Division dinner-dance Nov. 20 at the Newporter Inn. In addition, the evening's program will include cocktail music by a trio and dancing from 9 p.m. to music of Frank Amos' band. "It will be a fabulous affair," according to John Burke, club president. "Make your reservations early."

SERVICE PINS

Nineteen Electro-Mechanical Division employees will complete 10 years' service in October.

They are David Alexander, Helen Card, Ruth Colbert, Josephine Davis, Carl Davis, Ernest Dorko, Vito DePaul, Elizabeth Fish, Richard Fore, Dick Fukuda, Shirley Hamp, Steve Hu, Sadie Humphreys, Linden Hushman, John Iwashita, Gene Kessler, William Moore, Robert Titterington, and Elmer Wachsman.

Not previously reported was Ernest Verdugo, Test Engineering, who completed 10 years with Northrop in August.

Olson Studies Retrofit Emission Controls

A $300,000 government contract to study the effectiveness and cost of fitting used vehicles with emission control systems has been awarded to Olson Laboratories, Inc., a subsidiary of Northrop Corporation operating as a unit of the Electro-Mechanical Division.

The contract is with the Federal Environmental Protection Agency (EPA) for the "Analysis of Effectiveness and Costs of Retrofit Emission Control Systems for Used Vehicles."

"Retrofit" is defined as the addition of any emission-control device or system to a car which was not originally equipped with such devices by the manufacturer. Retrofit also includes any modification and/or adjustment — excluding tuneup and maintenance — which may be made to a car to reduce emissions.

At the present time, 91 per cent of the nation's light-duty vehicles are not equipped with fuel evaporative emission controls, 68 per cent have no exhaust emission control, and 26 per cent have no crankcase blow-by devices.

Donel R. Olson, president of Olson Laboratories, estimated that practical and effective emission control equipment on used vehicles would produce a 25 to 50 per cent reduction in total emissions of carbon monoxide, hydrocarbons, and oxides of nitrogen from gasoline-powered cars and trucks.

The program is under way at the Northrop-Olson test facility in Anaheim and at Olson's test facility in Dearborn, Mich.

The Olson program is the first to provide a comprehensive analysis which may be used as the basis for a feasible retrofit emission control system program for used vehicles.

The retrofit program is under the direction of Howard Bunch, Olson's vice president for Testing Programs, with Gary Wilson as program manager and Milt Webb as project engineer.

PADDLE CHAMPS

John Flannagan and Miller Ching took first and second places in the NRC Picnic Table Tennis Tournament men's singles, and Mildred Williams and Beverly Talbot were first and second in the women's singles.

In the mixed doubles, Jack Flannagan and Mildred Williams were first. Don Hall and Beverly Talbot took second place. Jenny Rollins and Mary Kay Criss were the top two in the girls' singles.

THE MILES OF WIRING necessary to equip one of the consoles that the Electro-Mechanical Division is building for the Navy's Ocean Simulation Facility are put together by Gen Hannah, foreground, and Laura Bartok. The console is built under contract to the Naval Facilities Engineering Command.

IT'S ALMOST TIME to replace that hour we lost in April when Daylight Saving Time started, Sharon Byerly, Aircraft Division, reminds us. The time changes back to standard time at two a.m. on the last Sunday in October. Just run your clock back one hour and you'll be on time for work the next Monday.

Northrop Dakota Holds Anniversary Open House

More than 1,200 persons attended an Open House earlier this month at Northrop Dakota, Inc., to celebrate the plant's first year of operation in New Town, N.D.

The Open House was held in conjunction with several other activities in the New Town area, on a day which honored Senator Milton R. Young, R-N.D., for the numerous contributions he has made to the community.

Northrop Dakota, Inc., produces parts and items for use in Northrop electronics equipment and aircraft. The plant employs approximately 63 people, the majority of whom are Indians from the nearby Fort Berthold Indian Reservation.

Visitors to the plant viewed a number of exhibits, including models of the Northrop F-5E and the U.S. Marine Corps AV8A vertical takeoff and short landing aircraft. Also on display were an operational voice warning system, the inertial measurement unit for the C-5 navigation system, a high-speed, general purpose digital computer and a mock-up of the highly successful OV5-9 spacecraft.

In addition, local residents were shown a 15-minute color slide presentation on the worldwide capabilities of Northrop.

MQM-74A FIRED FROM DESTROYER

The MQM-74A/Chukar went through its paces from a new launch pad recently when it was launched from a U.S. Navy dash-configured destroyer escort out of San Diego.

The target has been launched from an aircraft carrier but this latest firing was another display of the bird's ever-growing versatility. Three targets were fired from the deck of the USS Francis Hammond.

Representing Ventura at the exercise were Jerry Koopman, Don Peck, Ken Grass, Tom Smalley.

GETTING TO KNOW NORTHROP DAKOTA, INC.
Visitors viewing exhibits at the Open House celebration.

First F-5E Assemblies Are Moving on Schedule

Moving precisely on schedules established almost a year ago, major subassemblies for the new Northrop F-5E fighter are now appearing in increasing numbers along Aircraft Division assembly lines.

Initial subassemblies — sections of the inlet ducts and parts of the center and forward fuselage — were loaded into assembly jigs Oct. 8 as originally scheduled in late 1970, shortly after Northrop contracted to develop and produce the F-5E for the USAF.

The first subassemblies, plus others that have joined them subsequently, are destined for use in initial flight test aircraft of the F-5E fleet.

Following factory completion at the Hawthorne plant, flight test aircraft will be trucked directly to Edwards AFB for tests. The first aircraft is now slated for flight in early summer of 1972.

Components for use in both static and fatigue test aircraft are also flowing on assembly lines, along with flight test aircraft parts.

Darrell McNeal, manager of F-5/T-38 Assembly Operations, called the on-schedule loading of initial parts a "significant achievement across the board."

"Every department, from Engineering to Tooling, Materiel to Machine Shops, Planning to Quality Control, has contributed to this status," he said. "Many individuals are due a 'well done' for their efforts."

FIRST F-5E SUBASSEMBLY IN JIGS
Guillermo Navarro, left, discusses work with Earl Bentley.

PPD Handles Grid Ticket Distribution

Electronics Division's Precision Products Department, Norwood, Mass., was recently awarded a contract for distribution control of all season tickets to the New England Patriots' new 61,000-seat football stadium in Foxboro.

The new system, which imprints tickets for all of the Patriots' home games on a single sheet of paper, was devised by PPD's Data Processing group.

"This is one of several new commercial accounts being handled by our people," said Art Dubnow, chief of Data Processing. He added that the department is currently investigating similar programs with other companies.

ALUMNI GROUP SELECTS GIL NUNN

A Ventura Division photographer, Gil Nunn, has been elected second vice-president on the executive board of directors of the newly-formed Brooks Institute of Photography Alumni Assn.

Mr. Nunn was named to the board while attending the recent statewide convention of the Professional Photographers of California in Fresno.

Two of Mr. Nunn's photos were selected by judges to be among the limited number displayed for the 1,000 visitors to see at the convention.

The photos, both in color, were of a Northrop MQM-74A target being launched in an exercise at Twenty-Nine Palms and another entitled "Help." The latter shows a yellow flower alone in a profusion of pink and fuchsia flowers.

NORTHROP AIRCRAFT'S Quality Engineering Lab has provided the classroom facilities and hosted a Boeing Company school for plating vendors. The class included instruction in the use of a new machine to check for hydrogen embrittlement in plating solutions. Shown using the test equipment in class are, left, Ameil Forshee, TBC; Henry Meers, Bendix; Art Scherman, TBC; John Kemper, and Chester Bowling, Super-Chromex. At right are Bill Snyder, Embee; Bob Litchliter, Menasco.

Northrop Support Personnel Take Part In Important NASA Scientific Flights

Northrop support personnel participated in two recent important scientific flights of the NASA Convair 990 flying laboratory, at Ames Research Center, Moffett Field, Calif.

The most recent flight, departing from Wallops Island, Virginia, on Sept. 7, participated in the Barium Ion Cloud launch. This experiment in effect placed a man-made star-appearing image in the sky to be observed from points in South America and the west coast of the United States. The star effect was fired at 20,000 miles above the earth by a rocket and was viewed by scientists in the CV-990 at an earth point approximately 300 miles east of the Bahamas Islands.

The other flight, made two months earlier, carried scientists on the Hawaii Mars Observation flight. This flight enabled scientists to view the planet from a position above the greatest mass of the earth's atmosphere. Data gathered is expected to aid the projected NASA unmanned rocket exploration of the Red Planet.

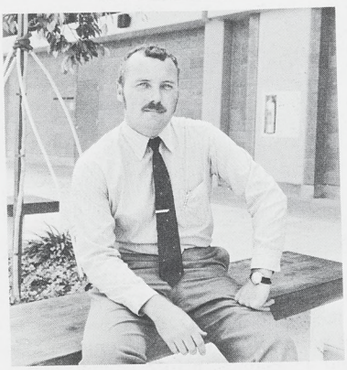
Northrop support personnel participating in the CV-990 program are flight support members stationed at Ames Research Center, Moffett Field, Calif., according to Frank Schroeder, resident manager of Northrop activities at Ames.

They are: R. W. Adkins, pilot; E. C. Mitz, flight engineer; R. J. Watson, crew chief; and flight support technicians D. R. Burris, G. H. Harner, C. P. Kahl, C. A. Robinson, C. T. Simpson, B. C. Tatum and P. V. Wolfe.

They Also Serve

Other flight support members assisting in NASA aircraft maintenance, but who were not on the Mars observation flight are K. W. Givens, B. B. Gray, K. D. Osborne and F. W. Stillman.

In addition to those associated with the Convair 990, Northrop Support, Inc., has approximately 36 other technicians and engineers at Ames Research Center who support flight simulator operations, Bio-Medical Research, Long Path Gas Cell activities, wind tunnel equipment and Zero-Zero landing systems.



GAGE SNOOK, Aircraft Division, has been named national chairman of the Northrop Institute of Technology Alumni Association's annual Giving Campaign.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Two Officers Begin EWI Training With Northrop

Captains Donald W. Bishop and John A. Justice, USAF production/procurement officers, are in the early phase of a 43-week tour of duty with Northrop Corporation as participants in the Education With Industry (EWI) Program.

This program, a joint venture of the Air Force Institute of Technology and leading government contractors, seeks to train young career officers in a technological - management environment affording them an opportunity to interpret events and make better decisions.

A basic program goal is to develop an understanding of the complete cycle involved in system concepts, design, development, testing and production.

During their stay at Northrop the officers will rotate through major departments and functions throughout the corporation, actually working on management-level problems. They will visit each major operating division, plus subsidiaries and specialized departments. A part of their time will be spent at the Corporate office.

Captain Bishop, a native of Alabama and graduate of Auburn University, entered the USAF in 1965. He served one year as test director of airborne electronics at Eglin AFB and for two years was deputy director of a remote satellite control station on Guam. He also served as maintenance officer and commander of the 1st Geodetic Communications Electronics Squadron.

The holder of B.S. and M.B.A. degrees from the University of Tennessee and the University of Montana, respectively, Tennessee-born Captain Justice entered the USAF in 1964.

He was a senior Minuteman missile combat crew commander at Malmstrom AFB, Montana, for three and one-half years. He served as fuels officer for the 8th Tactical Fighter Wing in Thailand for one year and was base fuels officer for the Air Defense Command at Kingsley Field, Ore.

NAS GETS PACT FOR MATERIALS

Northrop Architectural Systems has been selected to supply architectural materials for another important Southland building.

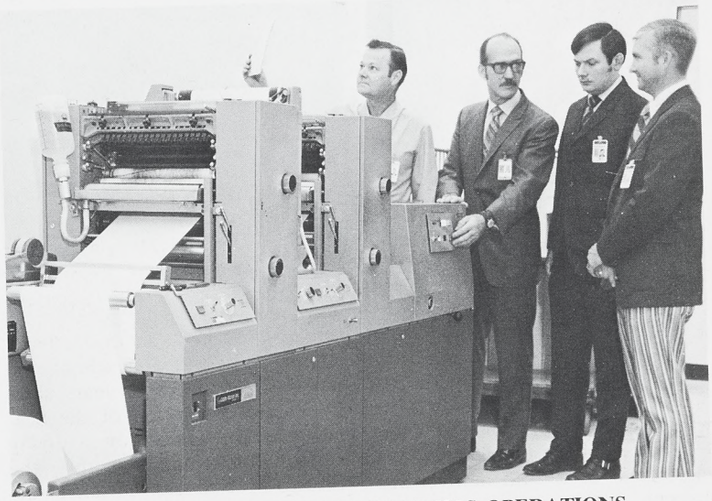
NAS has received a $3 million contract for the curtainwall for the 62-floor United California Bank building in Los Angeles which will be the tallest building west of Chicago.

Recently, NAS completed the curtainwall installation on the Balboa Insurance building in Newport Beach and is completing work on the Ahmanson Center, Los Angeles, and the Lawrence Welk building, Santa Monica.

CLASS IS OPEN

Northrop Toastmasters will launch a "Speechcraft" course October 28 and invite all employees to take part.

Session will be held from 6:30 to 8:30 p.m. each Thursday for eight weeks at the Turner Century Motor Hotel on Century Blvd. Contact Charles Ferraro, ext. 2927, or John Williams, ext. 2471, at the Aircraft Division, for information.



EWI TRAINEES STUDY GRAPHICS OPERATIONS
From left, Tommy Thomas, Don Baker, Capt. John Justice, Capt. Donald Bishop.

Erik Tandberg

A BUSY NORWEGIAN

Major Tandberg—Man of Many Talents

Major Erik Tandberg is a man of many talents—military officer, television commentator, lecturer, space exploration authority, to name a few.

Major Tandberg is currently F-5 project officer for the Royal Norwegian Air Force's (RNoAF) Air Materiel Command.

During a business visit to the Aircraft Division, Major Tandberg talked with Northrop News about his unusual career.

"I enlisted in the RNoAF in 1952, answering an advertisement for men to come to the United States for specialized mechanical training. I completed that training at Amarillo and Chanute AFB's," he said. "Subsequently, I returned to the U.S. to earn a bachelor's degree at the University of Santa Clara and a master's degree at Stanford. And for one year I studied rocket propulsion at Princeton as a NASA Fellow."

In 1960, the state-owned Norwegian Broadcasting Company (NBC) was looking for a suitable television commentator to discuss the launch and orbit of the world's initial weather satellite.

Major Tandberg went "on camera" and landed the job.

Steady Performer

Since that time he has served as a commentator on all space exploration activities for the NBC, a task that may take anytime from a few minutes to more than 15 hours, as was the case with a recent Apollo mission.

Major Tandberg is one-half of a special team covering such events. His associate, a journalist, handles "color" while the major concentrates on the technical side.

Over the past decade, Major Tandberg has become one of Norway's top authorities on space exploration and his face is known to people throughout his homeland.

"This is both good and bad," he says. "It is always nice to be recognized, but it can also play havoc with my family's privacy."

Walt Byers worked for an extended period as Northrop representative in Norway and is high in his praise of Major Tandberg's poise before the cameras.

"Erik is a natural for this. He is relaxed. He has a knack for taking highly technical topics and breaking them down so everyone can understand what is happening," Mr. Byers said. "He uses models and other props to a maximum advantage."

In its normal telecast of Apollo missions, NBC transmits actual audio and video signals, originating in the United States. These signals are received from a communications satellite. Thus, viewers hear what is happening in English. Major Tandberg and his associate break in for explanations in their native tongue from time to time to maintain continuity.

Shortly after he began working in TV, Major Tandberg found he was in demand as a lecturer and speaker on space topics. He now handles 60 or more speaking engagements each year throughout Norway.

Northrop Men in World Tourney

The Hawthorne Hustlers, a fast-pitch softball team that originated in NRC and continues to rely heavily upon Northrop talent, have competed in their third International Softball Conference World Tournament at Tulsa.

Deadlocked with Santee at the end of regulation play in the Western Softball Congress, the Hustlers took a best-of-three game series to earn the right to compete in Tulsa.

The Hustlers downed Wellsville, Utah, 7-0, and Mesa, Ariz., 9-2, before dropping a 4-3 game to Englewood, Colo. A second loss, 5-0, in the hands of El Paso eliminated the team.

Last year the Hustlers dropped their opening games, again to El Paso, then won eight straight before bowing to Phoenix in the championship round.

Pitcher Greg Halberg, second baseman Bill Greene and catcher Terry Birdsall are Northrop employees. Northrop's Monte Halberg is the general manager and Ray Hofius, the scorer.

HONESTY PAYS FOR PAUL FARHI

Paul Farhi, son of Ralph Farhi of Product Support, Aircraft Division, has discovered how rewarding honesty can be.

The 13-year-old ninth grader was en route to school when he found a shiny pendant in the grass. He brought his find home and his parents had it appraised by a local jeweler. Its value: $1,500.

The Farhi's turned the diamond over to the West Los Angeles police station and in short order it was returned to its owner, a neighbor of the Farhi's who had received it as a 25th anniversary present.

The grateful owner promptly presented Paul with a $50 check.

Former Aquanaut Lends A Hand in Cold Water Tests

William Armstrong, a former Navy aquanaut, took leave from Northrop's Ocean Simulation program, to participate in a 23-day series of cold water experiments for the U.S. Navy.

Purpose of the experiments was to measure the amount of heat loss from breathing cold gas in deep water. The tests were carried out in simulated depths up to 1,000 feet of sea water in a pressure chamber at Annapolis, Maryland.

While a diver can largely maintain skin temperature with heated suits, he still loses considerable heat through breathing. It is possible to reach the point where respiratory heat losses alone exceed the amount of heat naturally generated in the body. This is important since at this point a diver's core temperature drops and he quickly becomes chilled.

Mr. Armstrong was selected for the experiments because of his previous work as a Navy aquanaut. He was a member of the third team for the Navy Sea-[illegible] III program. He became interested in deep sea diving from reading as a child. Later he joined the Navy and then attended the service diving school. He left the Navy after 10 years' service at the conclusion of the Sealab program. He is now a diving systems engineer with the Electro-Mechanical Division, designing systems for the Ocean Simulation Facility at Panama City, Florida.

LOUIS VEERKAMP, Electro-Mechanical, displays the 231½ pound marlin he caught 12 miles northeast of Catalina Island. The marlin is the largest weighed in at Newport Beach in the last three years and one of the largest ever taken on a 30 pound line. Mr. Veerkamp, right, fought the big fish for three hours and 45 minutes before landing him. Shown with the champion fisherman is Capt. Milt Shedd, of 35-foot sport fisher "Sea World" and his wife, left, and Irv Shedd of the Electro-Mechanical Division's Product Engineering. At right are Mr. Veerkamp's wife, children and a friend. Mr. Veerkamp plans to have the fish mounted for his den.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Continental, 1966 2-dr. h/top, $1,400. 213-376-3790.

Buick, 1964 Riviera, p/s, p/b, a/c, $1,250. 213-325-8621.

Volkswagen, 1967, AM-FM radio, $945. 213-375-2789.

Truck, GMC, ¾-ton, $700. 213-370-6896.

Plymouth, 1970 Roadrunner, 383 eng., 4-spd., r/h, $1,895. 213-644-7906.

Mustang, 1969 GT351, 4-spd., 3.55:1 posi, new tires, batt., $1,950. 213-376-8102.

Volkswagen, 1969, new brakes, tires, batt., 51,000 mi., $1,300. 213-696-0787.

Station Wagon, 1959 Ford, V-8, $150. 213-676-4766.

Pickup, 1968 Ford F-100, a/c, V-8, $1,850. 213-425-3428.

Renault, 1968 Rio, radio, $900. 213-831-5304.

Mustang, 1970 Boss 302, Cyclone Mallory Mitchell, 3.90 posi., 15K, $3,000. 213-675-7443.

Datsun, 1969 sedan, 17,000 mi., $1,300. 213-372-5367.

Opel Rallye, 1971, 2-dr., 4-pass. sport cpe., auto. trans., 90 h.p., front d/brks., coil sprgs., AM radio, 10,500 mi., $2,175. 714-833-3297.

Buick, 1966 Wildcat, custom convt., full pwr., 445 eng., flight pitch trans., $1,100. 714-828-2856.

Toyota, 1969 Corona, 4-dr., auto., r/h, $1,395. 714-828-2857.

Buick, 1966 Wildcat, new tires, brakes, p/s, a/c, many extras, $1,200. 213-674-2278.

Pontiac, 1968 LeMans, 2-dr., V-8, a/c, $1,695. 805-495-6683.

Buick, 1961 Electra 225, 4-dr., r/h, air, all power, $375. 213-325-9248.

Rambler, 1965 4-dr. American 440, auto. trans., r/h, $575. 213-347-4087.

El Camino, 1959, $650. 213-676-0935.

Volkswagen, 1964, radio, 53,000 actual mi., $625. 213-675-2331.

Volkswagen, 1967, $775. 213-263-0057.

Chevrolet, 1965 Impala Super Sport convt., 395 turbo eng., $850. 213-675-6081.

Pickup Truck, 1969 Datsun, 7,000 mi., $1,175. 213-757-6806.

Chevrolet, 1968, & overhead camper, 8½', 6 cyl., stick shift, $2,800. 213-542-3465.

TR3A, 1960, $450. 213-833-9829.

Lincoln, 1966, 2-dr. h/top, a/c, full power, $1,325. 213-830-6163.

Grand Prix, 1967, 67,000 mi., min. bid $995. Credit Union ext. 1117.

Cadillac, 1959 Coupe de Ville, a/c, full power, $225. 213-674-8642.

Jaguar XKE, 1964 convt., chrome wires, extras, $1,895. 213-534-4420.

Ford, 1934, 5-window cpe., 289 c.i.d. eng., auto. trans., $1,500. 213-832-6394.

Mustang, 1967, 289 eng., r/h, a/c, p/s, $1,300. 213-833-0742.

GTO, 1965 Pontiac, r/h, 4-spd. trans., 2-dr. h/top, mag wheels, $750. 213-781-7418.

International Scout, 1970, travel top, 4-spd. trans., low mileage, 4-whl. dr., Warn hubs, $3,000. 213-835-0805.

Miscellaneous For Sale

Bicycle, Schwinn, girl's 3-spd., $20. 213-329-2842.

Walker, $7.50. 213-674-0852.

Kitchen Set, round table, 2 ext. leaves, 6 chairs, $40. 213-943-8187.

Radio, Grundig Majestic, mod. 3160, all bands, 12" remote spkr., $50. 213-675-6016.

Door, garage-boat, 8' wide, all hardware, $25. 714-968-1539.

Hide-A-Bed, Simmons, white naugahyde, opens to dble. bed, $65. 213-679-2864.

Vacuum Cleaner, Eureka, tank-type, all access., $10. 213-370-9124.

Air Conditioning Unit, Sears, for auto., complete, $50. 714-847-5938.

End Tables, commodes, matched pr., 26", walnut w/Never-Mar, $20 ea. 213-541-3000.

Guitar, elec. & amplifier, 10 W., $65. 213-377-5089.

Miscellaneous For Sale

Windows, 8 wood, 24" x 36", $2 ea. 213-379-4517.

Playpen, used 1 wk., $20. 213-325-3995.

Camera, Petri 7S, 35mm, f2.8, w/aux. lens, telephoto & wide angle, $40. 213-671-1815.

Sloop, Snipe by Varalyay, 16', fiberglass, north sails, custom trailer, fully equipped, $890. 213-375-7168.

Rifle, custom Jarment, cal. 220 Swift, equipped w/Lyman 8-power target-spot scope, maple stock, $175. 213-430-8400.

TV, b&w, 12" portable, VHF & UHF, $45. 213-676-7766.

House, 2-bdrm., w/sep. 1-bdrm. cottage, lge. R-2 lot, near Prairie & 104th St., $950 dn. & owner will carry first trust deed, $19,000. 714-826-5489.

Car Bed, baby's, w/infant seat & bassinet mattress, $15. 714-523-5304.

Piano, Hampton upright, $250. 213-379-7853.

Washer, Fridgidaire, w/dryer, Kenmore elec., $100. 213-542-8802.

Wig, 100% human hair, blond, shoulder length, $20. 213-370-9037.

Boots, Lowa hvy. duty German climbing & hiking, size 9½, $25. 213-645-1075.

Juicer, Oster, $18. 714-894-6365.

Stove, apt. size, 4-burner, $30. 213-530-5076.

Target Pistol, Ruger Mark V, .22 cal. bull bbl., 2 clips, $65. 213-327-4585.

Manifold, dual intake, 50% h.p. increase for 40 h.p. VW eng., $25. 213-821-4180.

Piano, Wurlitzer, $350. 213-328-5171.

Motor, 35 h.p. Evinrude, long shaft, elec. start., brass prop., many extras, $295. 213-378-2609.

Refrigerator-Freezer, Amana 22, side-by-side w/ice-maker, $300. 213-377-7670.

China, Noritake gold art pattern, over 100 pcs., 12-place setting & servers, $175. 213-376-4831.

Saxophone, 1 tenor, Noblet, $150. 213-423-1363.

Dining Table, antique, round, oak, 3 leaves, $125. 213-375-9340.

Drafting Board, 3' x 5' w/4' Bruning straight edge, $20. 213-323-8797.

Cabin, in Silverado Canyon, new dble. gar. & mobile home, on 2 lots, landscaped, furn. or unfurn., $18,000. 213-424-7351.

Cocktail Table, maple, dropleaf, $20. 213-532-6175.

Flash, electronic, Ultrablitz Meteor SP, KX II Guide No. 80, $35. 213-867-5809.

Desk-Chair, maple, student, $20. 714-826-0345.

Unicycle, w/poles, $15. 213-378-1863.

Bedroom Suite, 6-pc. twin, $65. 213-377-5936.

Chalet, Club San Moritz, Crestline, 1,400 sq. ft., furn., 1-¾ baths, sleeps 11, lot approx. 100' x 100' on corner, 80' concrete d/way, fully landscaped, $34,750. Box 1701.

Sailboat, Cal 20, new running rigging, $2,450. 213-393-3635.

Aircraft Kit, BD-5 Micro, priority No. 42, $1,600. 213-374-2915.

Bolts, assorted sizes, 40¢ a lb., or 3 lbs. for $1. 213-324-4648.

Motorcycle, 1970 Honda CB 350, $550. 213-325-3057.

Pool Table, 7', 1 yr. old, $150. 213-375-0813.

Dinette Set, China closet w/matching table, 4 chairs, solid oak, $195. 213-324-7257.

Chord Organ, Magnus elec., 12 chords, legs, seat & music books, $10. 213-671-1617.

Dryer, elec., Maytag, mod. DE 606, 5 yrs. old, $90. 213-327-6561.

Tires, 2, & wheels, snow treads, glass belted, size H-70-14, fits Chrysler or Ford, $50. 213-823-8694.

House, 3-bdrm., den, liv. rm., patio, bltins, 2 baths, $33,000. 213-830-5284.

Punch Set, 20-pc., lge. cut glass bowl, $5. 213-645-7972.

Sofa Bed, Riviera, gold, converts to 2 singles or dble. bed, used twice, $30. 213-374-7625.

Port-A-Crib, $15. 213-645-8004.

Travel Trailer, 16', new tires, stove & ice-box, $300. 213-545-2826.

Piano, Wurlitzer console, walnut finish, w/bench, $750. 213-377-5781.

Typewriter, Underwood, standard, $45. 213-676-4464.

Travel Trailer, 1971 18' mobile traveler, self-contained, a/c, complete, $2,600. 213-534-0239.

Ski Boots, child's size 1, seldom used, $5. 714-523-5315.

Home, 2-bdrm., G.I. resale, 6% loan, Inglewood, $22,000. 213-673-2033.

Bookcase-Desk, Never-mar, 7' long, $40. 213-865-1939.

Know Your Industry

In describing its Boeing 747 superjet as "One Big Bird," Delta Air Lines points out that the passenger capacity of one of its 747s is "two and one-half times that of our nine-airplane fleet in 1941. In fact, the capacity of our three 747s surpasses, by over 120, the seating of the 29 airplanes in our fleet of 1950."

* * *

If your car gets 15 miles to the gallon, you could drive 18 million miles, or around the world about 400 times, on the propellants required for the Apollo-Saturn lunar landing mission. The Saturn V vehicle contains 5.6 million pounds, or 960,000 gallons, of propellant.

Miscellaneous For Sale

Mobile Home, 55' x 10', w/expando 13' x 8', redwood storage 7' x 5', awnings, cooler, extras, in Torrance adult park, $5,500. 213-320-2512.

Bunk Beds, complete w/bed boards, Salem maple, $25. 213-675-8813.

Pool, 10' x 3' deep, filter, all access., $45. 213-542-5241.

Boat, 16' Glaspar, Johnson motor, 75 h.p., hvy. duty trailer, boat cover & all equipment, $1,300. 213-329-7447.

Sailboat, 8' fiberglass racing Sabot, sand dolly, full rigging, $275. 714-527-3554.

Roll-top Desk, student's modern, $45. 213-835-9330.

Snow Chains, unused, fit lge. sizes, $5. 213-679-1631.

Volkswagen Tent, never used, stands alone or attaches to sliding door van, $100. 213-320-4349.

Car Carrier, $175. 213-534-3410.

Mini-Bike, Trail 70 Honda, $225. 714-635-2539

Condominium, 1,400 sq. ft., 2-bdrm., den, 2 baths, all elec., sub-parking, many extras, 10 mins. to Hawthorne, $30,500. 213-674-1400.

Stove, Magic Chef, 3-burner, w/thermostatic oven control for camper or trailer, avocado green, $60. 213-675-6532.

Camper, 8½', full cabover, incl. jacks, dolly, awning & intercom sys., $850. 213-325-2292.

Fry-Pan, elec., Sunbeam, $10. 213-676-3050.

House, 2-bdrm., extra wide lot, 60x141, room for 2 units in rear, $21,000. 213-671-6692.

Living Room Set, 6-pc. Danish modern, black w/white naugahyde, some access. $25. 213-831-1745.

Wanted to Buy

Refrigerator, reasonable. 213-375-4314.

Motorcycle, Yamaha 90 Enduro. 213-378-4422.

Floor Jack, 2-ton, hydraulic, in good condition. 213-756-9697.

Sewing Machine, Singer Golden Touch & Sew, mod. 750 preferred. 213-672-2370.

Utility Trailer, approx. 4 x 8 or 4-bike motorcycle trailer. 213-834-9205.

Car Rack, suction cup-type. 213-379-9202.

Drone Propellers, will pay $5 ea., must be in good condition. Box 1702.

Bicycle, old or wrecked Sting Ray, to repair for needy children. 213-430-4407.

Free (To Be Given Away)

Kittens. 213-645-1489.

Rentals Offered

Apt, 1-bdrm., Redondo Beach, 3 blocks to ocean, $140. 213-831-0453.

Apt, singles, lge. kitchen, all utils. paid, $110. 213-675-7125, 213-323-9134.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

House, Bass Lake, $150 wk. or $45 w/end. 213-374-3702.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

House, 3-bdrm., 2 baths, w/f/place, cpts., dps., fenced yd., Garden Grove area, $245 mo. 213-860-3022.

Cabin, Lake Arrowhead, north shore, 200 feet from lake, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

Motor Home, 1971 Pace Arrow, 20', sleeps 6, a/c, radio, self-contained, fully equipped, insurance, $150 wk., $50 w/end, 5¢ mile. 714-846-1858.

Condominium, Mammoth Mountain, sleeps 4, complete kitchen facilities, pool, $40 w/end, $80 wk. 213-785-1405.

House, unit, 3-bdrm., newly redecorated, 2 baths, cpts., dps., closed gar., near Northrop, children OK, $215. 213-675-7938, 213-644-3544.

Rentals Offered

Apt, unfurn., 2-bdrm., 1½ bath, cpts., dps., all elec., big balcony, dble. gar., 1 block from Aircraft Div., $185 mo. 213-644-1763, 213-644-0387.

Apt, 1-bdrm., bath, N. Hollywood area, near Valley Center, Laurel Canyon Dr., $115 mo. 213-329-1861.

Mobile Home, Vogue Manor, Hemet, call collect, $56 mo. 714-927-2811, 714-544-7240.

Child Care

Child Care offered, lunches, fenced yard, close to Northrop. 213-644-8577.

Lost

Money, $200 cash, clipped together w/paper clip, at Northrop, reward. Box 1703.

Found

Mechanical Drawing Pencil in Eng. Science Center, give proper description to claim, ext. 1647.

Personals

Want To share rides from Huntington Beach 7 a.m. to 3:42 p.m., Aircraft ext. 1468.

I wish to express my sincere appreciation for the generosity & kindness extended at the recent death of my son, John C. Green. MRS. ORLENA GREEN.

Our sincere thanks to all of Plant Maintenance & Construction for the kindness & thoughtfulness at the recent passing of my father, Frank. FRANKLIN WEITZEL FAMILY.

I wish to thank all my friends for their cards & well wishes during my illness. JOHN HOLMAN.

Ride Wanted, 7:30 a.m. to 4:12 p.m., Centinela & Hazel or Centinela & Florence, Inglewood. Aircraft ext. 1191, 213-674-4563.

Thanks to all my dear friends for the cards & lovely flowers that brightened all my days in the hospital & at home. MARIE TULLY.

Would like to share my horse stabled in Rolling Hills, English or western experienced rider, $30 mo. 213-370-7904.

My sincere thanks to my many friends at Northrop for the lovely remembrances of cards & flowers during my recent hospitalization. RITA HARRIS.

Thanks to my many friends at Aircraft Div., for the kindness & sympathy extended with the passing of our beloved wife & mother, Martha Osborn. STANLEY OSBORN, JUDY GETTINGER & FAMILY.

Thanks to my friends who were so generous with gifts & good wishes upon my retirement. CASH STALL.

We wish to express our sincere gratitude to all our friends at Northrop for their sympathy & contributions to the Hawthorne Community Center for needy children. HERBERT & KATHLEEN EDWARDS.

Typewriter wanted for disabled person, call Aircraft ext. 6454.

Ride wanted home at 4 or 4:12 p.m. from Plant 1 to Manhattan Bch. near Marine & Meadows on 21 St., AFPRO ext. 4573.

Pilot Wanted, instrument rated, to join flying group commuting to work between Orange County & Hawthorne airports. 714-544-5297.

For Sale or Trade

Cadillac, 1962, 4-dr. h/top, new trans., a/c, p/w, p/s, p/b, $450 or take trade-in for small car or 6-cyl. 714-523-5389.

NORTHROP NEWS
Vol. 29 **No. 17**

Published monthly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

SHERRY GEORGE, Accounting, was married to Bill Rice in a ceremony at the First Christian Church, Anaheim, on Oct. 9. Mrs. Rice is the daughter of Harry George, Methods Engineering.

Club Hears Story of Olson Labs

The story of Olson Laboratories, Inc., and how it fits in the Northrop corporate family was told to the Electro-Mechanical Division Management Club by Donel R. Olson, president of Olson Laboratories.

Northrop recently acquired controlling interest in Olson Laboratories which now operates as a unit of the Electro-Mechanical Division. Olson is one of the nation's leaders in the field of vehicle emission sampling and measurement.

Appearing on the program with Mr. Olson was Jess Smith, president of Olson-Horiba, a joint venture of Olson Laboratories and Horiba, Ltd. of Japan. Horiba is a world leader in the manufacture of instruments and instrumentation systems. Following Mr. Olson's speech, he, together with Mr. Smith and John Gunderson, the Electro-Mechanical Division's project engineer for periodic vehicle emission test studies, comprised a panel that answered questions from the audience.

Mr. Olson said that Olson Laboratories was formed in 1967 in Dearborn, Michigan, to provide services and products in connection with the increasing importance of vehicle emission control requirements.

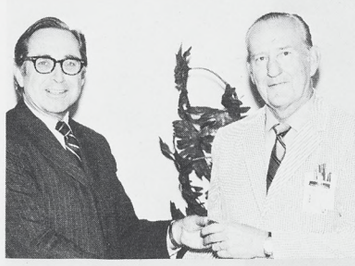
The company began with three employees and now, four years later, has 100 employees, doing a $3 million-a-year business. The company operates seven vehicle exhaust emission test centers in cities ranging from Washington, D. C., to Los Angeles, Calif.

Mr. Olson

It manufactures mobile emission laboratories for the automobile industry, calibration gases for use in emission test equipment and a constant volume sampler also for emission testing.

Mr. Olson pointed out that the importance of Olson Laboratories' work would increase due to requirements placed on states and the automobile industry by Federal government clean air requirements. These requirements have been stated through 1976.

Mr. Olson said that Olson Laboratories' association with Northrop would provide significant opportunity for expansion. "We will be able to use aerospace program systems management in a commercial field," he said.



QUARTER CENTURY service pins are presented to Bertrum Shearer, top left, Robert D. Philbrick, top right, and Glenn A. Landes, left, by Frank W. Lynch, at recent ceremonies at the Electro-Mechanical Division.

Committee Seeks Ways to Conserve

The Environmental Conservation Committee is developing a Master Action Plan to make the Electro-Mechanical Division a leader in pollution abatement, conservation of resources, environmental quality and reclamation of waste materials, according to Merrill E. Skilling, committee chairman.

Members of the committee include Don Foulds, Environmental Systems; Don Loomer, Technical; Joe Saline, Plant Engineering; Frank Merrell, Methods Engineering; C. T. Tucker, Operations; and Al Van der Most, Safety administrator.

The committee is currently evaluating plans, developing lines of attack, and isolating problems. A target date of January 1, 1972, has been set for management review of the Master Action Plan.

Twenty-Two Mark Twenty

Twenty-two employees reached the 20-year mark in Northrop service this summer.

Joseph Wilson, Supply Support, completed 20 years in May. Anna Butcher, Advanced Electro-Optical Systems, reached the two decade mark in June. In July there were seven others: David K. Belcher, Ordnance Lab; James Hamilton, Fabrication; Doyle Henderson, Proposals Management; John Maeseele, Tool and Supply; Wesley F. Toy, Test Operations; Harold E. Tracy, Sheet Metal and Weld; Ralph S. Vincent, Field Engineering.

In August new 20-year personnel were James Alexander, Fabrication; Arthur Modica, Sheet Metal and Weld; William Willis, Assembly Inspection; Robert Corson, Target Detection; and Frederick Brown, Contract Management and Planning.

Eight others were added to the list in September. They are Frank McIntyre, 747 Fabrication; J. O. Roberts, Production Development; Edward Balch, Assembly Inspection; R. E. Ramirez, Warehousing; Ercil Smith, Transportation; Donald Schoenmehl, Material Inventory Control; Robert Lanham, Production Change; and Marilyn Staffin, Management Systems.

Aerospace Engineers Tour Facilities Of Division's Environmental Systems

Twenty former aerospace engineers, retraining under a government Manpower Development Program to become Air Pollution Source Monitoring Investigators, toured the Electro-Mechanical Division's Environmental Systems facilities recently.

According to their Orange Coast College instructor, Dr. T. C. Hall, three-quarters of the group have engineering degrees and one-third have master's degrees.

Their studies at the college are part of a government program to retrain aerospace engineers who have been displaced by recent cutbacks and to provide use for their technological expertise in other fields.

Talking It Over

The visitors were welcomed to Anaheim by Roger Barquist, Environmental Systems Marketing, and then were briefed on the total aspect of Northrop's Environmental and Industrial Systems activity by Fern DiLabio, environmental engineer.

The briefing was followed by an extensive question and answer session conducted by Gary Wilson, test director for Olson Laboratories, Inc., a Northrop subsidiary.

DON'T FORGET

The NRC Las Vegas Trek is set for Nov. 12-14. There is still time to make reservations, according to Jack Kinzer, travel commissioner.

FANTOM FLING

The spooks will be out in force for the Halloween Fantom Fling costume dance planned by NRC for Sat., Oct. 30 at the NRC Clubhouse, 1834 Valencia, Fullerton.

According to Duane Baptiste, special events chairman, prizes will be awarded for the most original, the most attractive and the most comical costumes. In addition there will be a separate prize for the best costumes.

CMIP

(Continued from page 1)

troller for the trisonic wind tunnel at Huntsville.

"The principle factor for our record breaking Cost Management Improvement savings has been the integration of both old and new management attitudes and techniques," Mr. Budginas said. "This has resulted in the adoption and dissemination of more and more productive cost reduction ideas.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 29, No. 18 | November 1971

MEMBERS OF THE NRC Art Club take a break during an exhibit of their work at the recent Art for Fun(d)'s Sake show which the Palos Verdes Art Association stages each year on the grounds of Northrop's Electronics Division. From left, back, are Dick Mosher, Art Wiseman, Bill Gray, Peggy Lambert, Chuck Best, Jack Flannagan, and Bob Mack. Front, from left, Ed Mosher, Bob Peck and Fred Bailey.

HAPPY HOLIDAY

Kids' Christmas Party Set

The 1971 Electro-Mechanical Division Children's Christmas Party is set for Dec. 19 at the NRC Clubhouse, 1834 Valencia, Fullerton, according to Duane Baptiste, special events chairman.

The party, which is for both children and grandchildren of division employees, will include a visit from Santa Claus, a pony ride, a mechanical ride, refreshments and gifts for all children 10 and under.

Invitations have been delivered with paychecks, but anyone not receiving an invitation may pick up one at Personnel Activities.

The filled-in form, listing ages and names of children who will attend the party, should be returned to Personnel Activities not later than Dec. 9. This will provide time to insure that each child attending has a suitable gift.

Presents, selected by a committee, are graded according to age groups.

New Posts for Lloyd, Gasich

Appointments of two key Northrop executives, F. W. "Bob" Lloyd and Welko Gasich, to new management posts have been announced by President Thomas V. Jones.

Mr. Lloyd, a 30-year company veteran, has been promoted to Northrop senior vice president for Operations, a new corporate position.

Replacing Mr. Lloyd as general manager of the Aircraft Division is Mr. Gasich, a Northrop vice president who will retain his present post as general manager of Northrop's Ventura Division in addition to his new duties.

First Production Model of ECOLOG-I in Operation At Orange County's Airport

The Orange County Airport in Southern California became the first installation in the state capable of meeting new noise regulations for California airports with the installation of the first production model of Northrop Corporation's ECOLOG-1 monitoring system.

The production model ECOLOG-1 replaced a development model that has been undergoing tests at the airport since June 1970. The prototype was developed, built and placed at the airport for testing under a Northrop funded program as part of the company's move of aerospace technology to public service and ecology programs.

Following the test period, the prototype was leased by the airport while the first production model was being built.

First Of Its Kind

The ECOLOG-1 system provides the first permanent and all-inclusive means for an airport manager to pinpoint specific violations of airport noise abatement procedures.

ECOLOG-1 provides the first successful means of keeping a 24-hour check on noise violations. The system was developed by the Environmental Systems Department of Northrop's Electro-Mechanical Division in Anaheim, Calif. The noise monitoring system is one of a series of programs that Northrop is developing to channel aerospace technology and expertise into the solution of environmental problems. Other Northrop programs of a similar nature include air and water monitoring systems, the study of periodic vehicle exhaust emission inspections, airport development, and the environmental effect of airport expansions.

The Environmental Systems Department is under the management of James M. Ricketts with Robert D. Gafford as technical manager. Gordon Bricken, program manager, heads the engineering group that developed the ECOLOG-1 Noise Monitoring System.

New Junior Achievement Company Is Under Way; Advisors, Officers Chosen

The Electro-Mechanical Division is sponsoring another Junior Achievement company this year. Advisors chosen are Ray Ebbert, management; Dudley Hosea, financial; Betty Duba, production; Harry George, sales; and Herb Felix, alternate advisor. Bob Boostrom is the division coordinator for the advisor group.

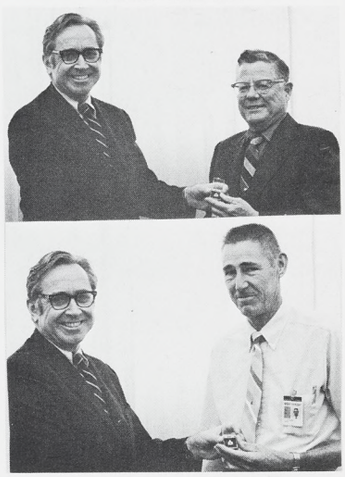
Corporate Name

At the first organizational meeting, members chose TOPCO as their corporate name and elected officers. The president is Al Dinsaver, Sue Howard is treasurer, Steven Jolitz is vice president, sales; Lee Rose is vice president, manufacturing; and Anita Seaward is corporate secretary.

The company will manufacture two products. One is a charcoal and fireplace starter that eliminates the offensive odor and hazards of liquid starters. The other product is a "Got-Cha Game" which is described as "starting where 3-D tic-tac-toe stops."

HOLIDAY AHEAD

The Electro-Mechanical Division, along with other divisions of Northrop Corporation, will observe Thanksgiving Day, Nov. 25, as a paid holiday. Regular work shifts will resume Friday, Nov. 26.



TWO DIVISION EMPLOYEES completed a quarter century of service in October. Above is William Van Ordstrand, Technical Information Center, receiving his 25-year pin from Frank W. Lynch, vice president and general manager. Mr. Van Ordstrand joined the company Oct. 7, 1946. Below, a similar pin is presented to Glenn Dory by Mr. Lynch. Mr. Dory, who joined Northrop Oct. 10, 1946, is with Tool and Test Equipment Manufacturing.

Savings, Improved Capabilities Expected From IBM 370/165 Computer Acquisition

Northrop Corporation expects to realize substantial savings as well as benefits from improved capabilities in the processing of business and scientific data with a new IBM 370/165 computer system now being installed.

The value of the system is approximately $5,500,000. Northrop is purchasing 60 per cent of this amount with the remaining portion of the equipment being rented from IBM.

The IBM 370/165 computer system replaces three computers, two IBM 360/65's and a 360/40, used by Northrop since 1966.

Installation of the new equipment and removal of the old equipment began last month in the NDP Operations Center at Hawthorne which serves all Northrop facilities in the Southland. Full operational status of the new equipment is expected by early December.

The computer will reduce NDP operating costs by more than three-quarters of a million dollars annually. Improved capabilities for business data processing, 34-digit precision for scientific calculations, faster performance and more magnetic storage capacity are other expected benefits.

Paul Wierk, NDP manager, cites flexibility as extremely important in the present day environment: "The new computer system is a viable piece of equipment in that the capability productivity may be increased or decreased by the addition or removal of components. This will enable NDP to more closely align the equipment configuration with the workload requirements which will result in minimizing equipment costs."

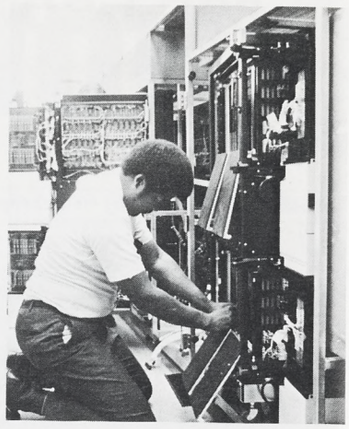
It's Compact

The IBM 370/165 is comprised of 60 individual units compared to approximately 100 units which made up the three replaced computers.

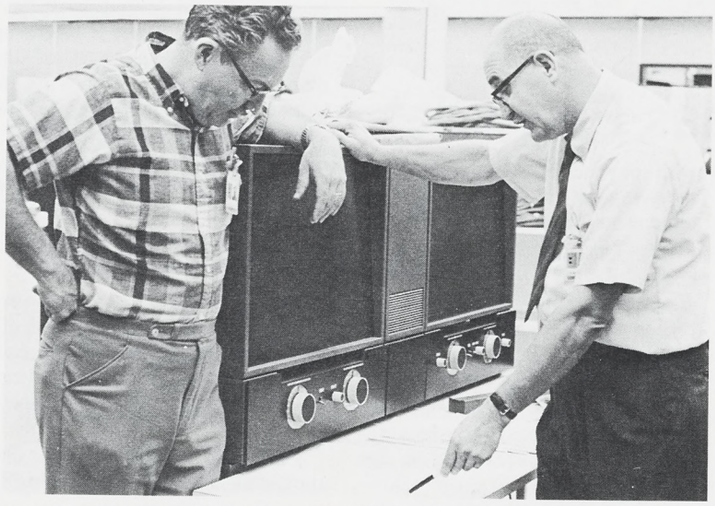
Five full-sized moving vans were required to truck the IBM 370/165 to Hawthorne. Installation requires three weeks of around-the-clock work progressing seven days a week. It requires special electrical power and has necessitated the installation of a new motor generator converter unit connected directly to an Edison substation, all to minimize risks of power disruption. Special air conditioning and plumbing with 40-degree water is required to cool the central components of the computer system. Installation of the 370/165 also involves over 300 multiple cables installed under a raised floor to interconnect the component units and provide controls and necessary power.

Northrop personnel concerned with the computer have been phased through a series of special orientation sessions. Others are scheduled to follow.

This major improvement in data processing equipment is the third to be undertaken by Northrop in the past decade to keep abreast of the state-of-the-art and benefit from improvements in cost performance.



INSTALLATION of new Northrop computer required many hours, many people. Above A. B. Parker completes interior cabling task, while below is Jim McKnight working on cables connecting units.



RICH CARLSON, LEFT, JIM PINOSKI DISCUSS TASKS AT HAND

HAWAIIAN TOUR BRIEFING SET

A final briefing meeting for the annual NRC "Hawaiian Holiday" is set for 8 p.m. Friday at Dandel's Restaurant, 12000 S. Western Ave.

Information, instructions and facts pertinent to the 10-day group tour of the islands over the long yearend holiday will be available. Questions will be welcomed.

The tour price is $398 per person and the itinerary includes visits to four islands. Reservations will be accepted at Personnel Activities through Dec. 6.

MOVED LATELY?

If you have moved or changed your mailing address recently, Northrop Personnel Records offices need your new address. Current addresses are important to insure receipt of company mail or W-2 tax forms to be distributed shortly after the beginning of 1972.

Jamboree in Japan Busy Time for Ayers

Donovan Ayers, son of H. W. "Bunky" Ayers, an engineer in the Electronics Division's Advanced Systems Department, recently returned from Japan where he attended the 13th annual Boy Scout World Jamboree.

During the three-week event, Donovan and the other boys in his troop had the opportunity to visit many parts of the country including Tokyo, Kyoto, Yokohama City and Mt. Fuji.

In an account of the troop's visit, carried in a bylined article in the South Bay Daily Breeze, Donovan wrote that each day of their stay was filled with activities, "from the opening ceremony where the parade of flags of 99 of the countries represented took place, to the spectacular closing ceremony that ended with an unforgettable display of fireworks."

Donovan said that his troop played many types of games with their fellow scouts, held a joint campfire with some Japanese boys and participated in the Jamboree's Skill-O-Rama, a showplace where each troop does or shows something characteristic of its area.

"We were a little sad to have our big adventure end," he said. "We brought with us many memories not soon to be forgotten, some pictures and souvenirs of a beautiful and hospitable country, and, perhaps most important, some new friends."

SOCIETY PICKS NORTHROP MEN

Northrop's Richard Schneidmiller and R. E. Herfert have taken on dual jobs with a local and national professional society.

Mr. Schneidmiller, Corporate Laboratories, becomes past president of the Southern California Society for Electron Microscopy. He will also serve as vice chairman of the 1972 national Electron Microscopy Society of America/Pan Pacific Conference.

Mr. Herfert, Aircraft Division, is new first vice president, physical sciences, for the local chapter and will act as program chairman for physical sciences at the 1972 meeting.

RECORD CHECK

Northrop Credit Union statement of accounts were distributed recently along with auditor's account verification records.

Members who did not receive them are asked to contact John B. Knight & Co., 2926 Santa Monica Blvd., Santa Monica 90404. Queries should include the member's name, address, account number and mention of Northrop Credit Union.

Northrop Employees' Savings Plans Annual Report for 1971

The tenth Annual Report of the Northrop Employees' Savings Plans is presented below. Publication in the Northrop News makes the report available to all employees.

This report covers the cash transactions made during the fiscal year ended July 31, 1971, and during the period since the inception of the Salaried Plan on Feb. 1, 1962, and the Hourly Plan on Feb. 1, 1966. It also shows the condition of the Trust at the close of business on July 31, 1971, the values of the respective funds, the investments held as of that date and the unit values which have prevailed since the plans were started.

Summary of Transactions through 31 July 1971

	Fiscal Year 1971	Since Inception
Cash Received:		
From Salaried Participants	$ 5,745,009	$ 41,703,563
From Hourly Participants	1,120,227	6,883,486
Total Participant Contributions	$ 6,865,236	$ 48,587,049
From Northrop (50% Participant Deposits less forfeitures)	3,063,165	20,762,311
Total Contributions	$ 9,928,401	$ 69,349,360
From Sale of Bonds	5,542,396	24,439,434
From Sale of Stocks	10,638,890	31,156,830
From Income on Bond Fund Investments	720,959	3,236,998
From Income on Stock Fund Investments	481,321	1,945,758
From Income on Northrop Stock Fund	518,174	2,398,640
From Sale of Temporary Investment in Profit Fund		1,100,000
Total Cash Received	$27,830,141	$133,627,020
Cash Paid Out:		
For Purchase of Bonds (Including Accrued Interest Paid)	5,434,461	36,764,933
For Purchase of Stocks	12,452,773	50,333,448
For Purchase of Northrop Stock (156,600 shares during Fiscal Year 1971; 780,058 shares since inception)	3,370,067	23,295,364
To Participants on Withdrawal (in addition to 78,957 shares of Northrop stock during Fiscal Year 1971; 218,688 shares since inception)	6,607,208	23,039,141
Total Cash Paid Out	$27,864,509	$133,432,886
Balance	(34,368)	194,134
Cash on Hand – Beginning of Period	228,502	
Cash On Hand 31 July 1971	$ 194,134	$ 194,134

Summary of the Condition of the Trust at 31 July 1971

Cash on Hand:		
For Purchase of Bonds		$ 30,855
For Purchase of Stocks		74,129
For Purchase of Northrop Stock		89,150
Total Cash on Hand		$ 194,134
Interest Accrued on Bonds		177,623
Dividends Declared but not Received on Stocks		9,637
Market Value of Investments:		
Purchased with Participant Contributions:		
Bonds (Cost $11,720,589)		10,311,887
Stocks (Cost $20,718,195)		23,812,963
Purchased with Northrop Contributions:		
Northrop Stock (Cost $15,908,026)		10,736,201
Total Value of Trust		$ 45,242,445
The Value of the Trust is Divided as Follows:		
Participants' Savings Accounts:		
Bond Fund	$10,520,365	
Stock Fund	23,896,729	34,417,094
Participants' Profit Account (Northrop Stock)		10,825,351
Total Value of Trust		$ 45,242,445

INVESTMENTS AS OF 31 JULY 1971

BOND FUND	Face Amount	Cost	Market
Public Utility	$ 2,676,000	$ 2,680,246	$ 2,222,022
Industrial	2,766,000	2,772,304	2,148,367
U.S.A. Government	1,519,000	1,511,101	1,471,722
Bank Finance	1,100,000	1,096,313	926,294
Federal Agencies	2,220,000	2,189,375	2,166,640
Foreign	367,000	360,250	265,842
Commercial Paper	1,111,000	1,111,000	1,111,000
	$11,759,000	$11,720,589	$10,311,887

STOCK FUND		Shares	Cost	Market
American Airlines, Inc.	com	4,500	185,829	123,187
American Express Co.	pfd	2,000	139,000	233,000
American Express Co.	com	6,000	354,960	699,000
American Electric Power	com	10,000	287,770	275,000
American Hospital Supply Corp.	com	20,200	442,693	714,575
ARA Services, Inc.	com	2,800	366,257	371,700
Avon Products	cap	6,600	358,494	633,600
Black & Decker Mfg. Co.	com	11,250	344,474	846,562
Burroughs Corp.	com	4,000	490,512	468,000

STOCK FUND		Shares	Cost	Market
Carolina Power & Light Co.	com	3,000	133,017	72,000
Citizens & Southern Natl. Bank of Ga.	com	10,000	226,820	320,000
Coastal States Gas Producing	com	5,000	258,050	243,750
Combined Insurance Co. of America	com	9,840	383,512	418,200
Control Data Corp.	com	5,000	580,252	252,500
Deere & Co.	com	10,500	459,662	462,000
Eastman Kodak Co.	com	6,040	349,759	456,020
Federated Department Stores, Inc.	com	18,000	624,181	783,000
Ford Motor Credit Co.	Demand Notes		987,000	987,000
General Electric Co.	cap	14,000	631,705	747,250
General Motors Corp.	com	11,500	851,091	882,625
Harcourt, Brace, Jovanovich	com	2,800	238,144	111,300
Harris-Intertype Corp.	com	6,000	373,140	301,500
Hewlett Packard	com	1,200	59,293	46,200
Hyatt Corp.	com	10,400	299,475	254,800
Illinois Power Co.	com	2,100	80,611	72,188
International Business Machines Corp.	cap	2,606	455,817	758,997
International Nickel	com	20,000	787,251	662,500
International Paper Co.	com	10,000	342,510	322,500
International Tel. & Tel. Corp.	com	17,000	904,947	1,054,000
Johns Manville Corp.	com	10,000	398,311	407,500
Johnson & Johnson Co.	com	12,000	223,609	1,128,000
Kansas City Power and Light	com	6,000	205,360	203,250
Kentucky Utilities	com	20,700	578,674	527,850
Merck and Co.	com	5,000	523,426	513,750
Middle South Utilities, Inc.	com	7,600	184,960	181,450
Norton Simon, Inc.	com	10,554	500,492	567,277
Owens Corning Fiber Glass	com	3,000	118,680	130,125
Owens Illinois, Inc.	com	9,000	653,155	510,750
Pennsylvania Life Co.	com	9,400	357,350	307,850
Perkin-Elmer Corp.	com	8,000	353,842	366,000
Polaroid Corp.	com	3,046	338,505	304,981
Public Service Electric and Gas	com	3,000	80,250	80,250
Reynolds Metals Co.	com	6,200	254,553	143,375
Sanders Association, Inc.	com	10,000	464,241	116,250
Schering Corp.	com	10,000	549,110	822,500
Schlumberger, Ltd.	cap	7,500	279,752	1,041,563
Southern California Edison	com	3,300	109,992	108,488
Southern Co.	com	5,000	137,963	108,750
Standard Oil of New Jersey	com	5,000	385,846	382,500
TRW, Inc.	com	7,200	238,075	253,800
Union Oil Co. of California	com	5,000	282,408	162,500
Wickes Corp.	com	10,000	375,105	425,000
W.T. Grant Co.	com	10,000	473,447	625,000
Xerox Corp.	com	7,300	728,991	821,250
			$20,792,323	$23,812,963

PROFIT FUND	Shares	Cost	Market
Northrop Corporation	561,370	$15,908,026	$10,736,201

HISTORY OF UNIT VALUES

Valuation Date	Bond Fund	Stock Fund	Profit Fund
7/31/62	$1.00678	$ .82673	$ .84299
7/31/63	1.07228	1.03982	.74533
7/31/64	1.12346	1.25478	.64951
7/31/65	1.18096	1.31530	1.05750
7/31/66	1.12924	1.38824	.97052
7/31/67	1.17227	1.78819	1.78347
7/31/68	1.17991	1.98598	1.62488
7/31/69	1.14589	1.94687	1.48373
10/31/69	1.14634	2.22865	1.65253
1/31/70	1.11300	1.97274	1.14087
4/30/70	1.14421	1.78880	.86877
7/31/70	1.14710	1.66295	.73156
10/31/70	1.18240	1.83839	.75679
1/31/71	1.32315	2.16332	1.13340
4/30/71	1.26402	2.44196	.99509
7/31/71	1.31717	2.29024	.82760

The complete annual report of the Trustee is available for inspection, during regular first shift hours, in the Industrial Relations Office serving your facility.

Murphy Turns Old Mail Van Into A Rolling Home

When M. G. "Murph" Murphy saw the price tag on a new camper, he decided to see what he could do about building one himself.

He began by buying a surplus U.S. mail van for $400, a $2 ice box at a surplus sale, and such odds and ends as pipe, paneling and foam rubber.

So for less than $500, plus lots of work which he insists is really fun, he has converted the van into a camper that is a head-turner everytime he drives it to work at Anaheim.

He fitted the inside with windows, overhauled the back to make a door, fitted four bunk beds made of pipe and covered with foam rubber, and added a chair, rug, wall paneling, and cabinets. Under the bunks are food storage boxes stocked "for a quick getaway when I get the urge."

Mr. Murphy did all the work himself, except for the painting. The basic painting was done by his father-in-law. And his mother-in-law decorated the sides with extremely clever cartoons depicting members of the Murphy family as birds perched on a tree limb.

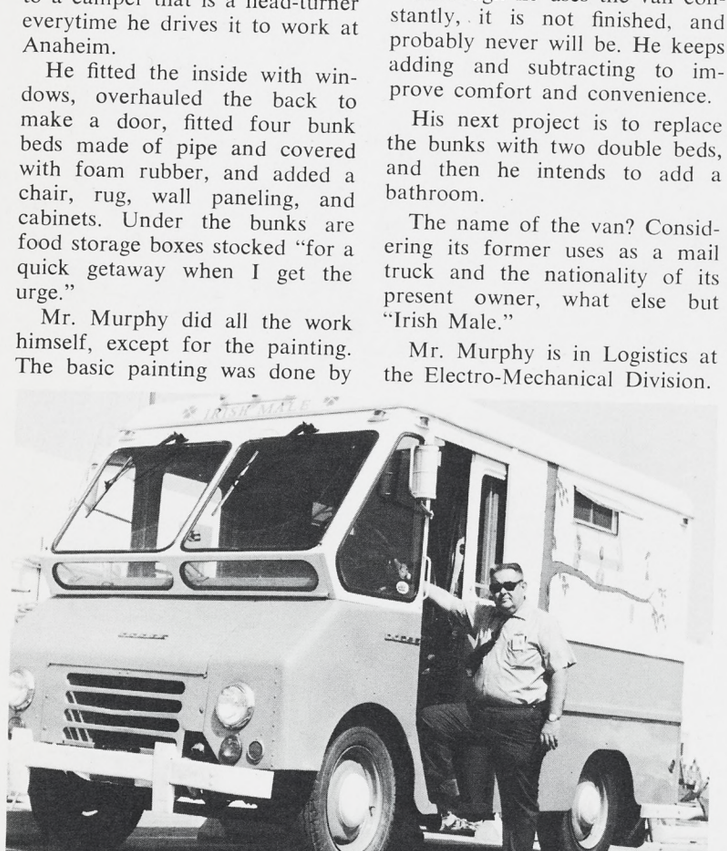
"I had a lot of fun building the camper," Mr. Murphy reports. "The fact that the original mail van had 94,000 miles on it hasn't been a liability either. It now has 111,000 and hasn't caused any trouble at all."

Although he uses the van constantly, it is not finished, and probably never will be. He keeps adding and subtracting to improve comfort and convenience.

His next project is to replace the bunks with two double beds, and then he intends to add a bathroom.

The name of the van? Considering its former uses as a mail truck and the nationality of its present owner, what else but "Irish Male."

Mr. Murphy is in Logistics at the Electro-Mechanical Division.



M. G. MURPHY AND HIS 'IRISH MALE' CAMPER

TAKE FIVE
Terri Kennedy relaxes in a wheelchair during a break in the filming of "The New Doctors." Seated in the background is television star E. G. Marshall.

Silent TV, Movie Roles Earn Plaudits for Trio

Without saying a word, the children of John Kennedy have established themselves as veteran television and motion picture performers.

Over the past year the young thespians — Terri, 9, Kevin, 8, Alfreda, 6 — have won silent roles as extras in a number of top-rated shows.

Some of their credits are "Marcus Welby, M.D.," "Columbo," "McCloud," "The New Doctors" and "Walt Disney World." In addition, Alfreda will be appearing in the soon-to-be released movie, "Gidget Gets Married," and Terri is appearing in a current Pepsi Cola commercial.

Their father, who works as an offset pressman in the Reproduction unit, Electronics Division, said the children got their start in acting through a friend of his who works as a talent scout for a Hollywood casting agency.

"All I had to do was send the agency a photo of each child. As openings came up, my wife would take the children in for an interview.

"I had no idea, though, that all three of them would become so heavily involved in such a short period of time," Mr. Kennedy said. "Later, however, I found out that once a director becomes acquainted with children who are cooperative and well-behaved, he calls on them again and again."

The proud father readily admits that he and his wife are as enthusiastic as their children are about the entertainment industry —especially when they have the opportunity to visit the sets and meet with the stars.

"So far it has been a wonderful experience for the entire family," he said. "And, if nothing else, it has taught my children what I mean when I say, Silence is Golden."

They Met on Hawaiian Tour, Wed, Now Retire Together

An NRC Christmas tour to Hawaii seven years ago is the reason there was a double retirement party at the Aircraft Division recently.

The party was for Margaret and Mike Bartmus, who closed out their Northrop careers with 26 and 20 years, respectively, of work with the company.

Seven years ago Margaret was working in Correspondence Control and Mike was with Maintainability. Although he often came to her department to pick up work, somehow they never met.

Anyway, the stranger-neighbors both joined the NRC Holiday Tour in 1964 and first met 1,900 miles from home in Hawaii. Margaret, a widow, and Mike, a widower, discovered that they had missed something by not having met before. They were married soon after their return.

Northrop Recommended

Mrs. Bartmus joined Northrop in 1945 because a neighbor who had worked for Northrop during the war had recommended the company as a good place to work.

Mr. Bartmus came to the Aircraft Division 20 years ago. At the time he owned a service station, but found being on his feet so long was a strain. "I joined Northrop because I'd had several customers who worked at Northrop and they all told me there was no better place to work."

Upon retirement, the Bartmus' say they will stay in this area. "We have too many friends here to move," they said.

They also hope to get some traveling done. "In fact," Mr. Bartmus said, "that Hawaii trip seven years ago turned out so well, that we might join NRC for another one sometime."

MARGARET AND MIKE

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Rambler, 1963 American, 49,000 act. miles, $200. 213-370-9124.

Chevrolet, 1962 Nova II convt., $300. 213-377-4251.

Chevrolet, 1955, 3-spd. trans., 292 eng., w/Sig Ericon cam, 4-bbl. carb., radio, $650. 213-542-2638.

T-Bird, 1963 convt., sport mod., 48,000 mi., $775. 213-675-4786.

Chevrolet, 1964 Impala, 2-dr., p/b, p/s, r/h, $625. 213-542-2390.

TR 4, 1962, $250. 213-360-0470.

Volkswagen, 1968, sun roof, $995. 213-757-4646.

Chevrolet, 1965 Impala Super Sport, a/c, full power, $750. 213-377-7670.

Subaru 360, 1971, under 300 mi., 60 mpg, $800. 714-826-2007.

Lincoln, 1965 Continental, many extras, $1,500. 213-679-1179.

Buick, 1965 Skylark, 2-dr. h/top, auto., r/h, a/c, $625. 213-542-3459.

Firebird 400, 1969, 26,000 miles, $2,500. 213-676-7272.

Mustang, 1967, 289 eng., auto., r/h, p/s, air, $1,195. 213-833-0742.

Chevrolet, 1970 Malibu spts. cpe., a/c, power s&b, radio, 300 h.p. 350 cu. in. V-8, $2,995. 714-879-4273.

Mustang, 1966, 6 cyl., stick shift, h/top, 2-dr., $725. 213-532-7846.

Triumph, 1968, 650 cc, $850. 213-376-3277.

Cutlass, 1962 F-85, convt., console 4-spd. trans., $295. 213-377-3552.

Chevrolet, 1964, 2-dr., V-8, new eng., trans., $700. 213-372-5880.

Volvo 142S, 1968, less than 30,000 mi., new d/brakes, 4-spd. w/overdrive, $1,850. 213-675-4344.

Plymouth, 1969 GTX 440, auto., p/b, $1,700. 213-675-4764.

Chevelle, 1968 Malibu sedan, 6-cyl., $1,000. 213-377-7576.

T-Bird, 1962, $350. 213-670-4702.

Chrysler, 1960 Windsor, 4-dr. sedan, new Sears Die-Hard batt., good tires, $195. 213-324-1719.

Triumph 250, 1968, min. bid $1,300; Bonneville, 67,000 mi., min. bid $845. Credit Union ext. 1117.

Miscellaneous For Sale

Picnic Table, redwood, 2 benches, $10. 213-943-8187.

Rifle, Springfield M-1 Garand, 30-06 cal., 10 clips, approx. 100 rnds. of brass, $100. 714-894-6365.

Pool Table, Sears full-size, cue sticks & balls, 6 yrs. old, $50. 213-325-3995.

Box Trailer, lockable top, convt. for small boat, $55. 213-375-7168.

Sewing Machine, National rotary elec., wooden cabinet, $25. 213-376-4831.

Dinner Ring, ladies' diamond, never worn, $175. 213-835-9330.

Rifle, 30.06 semi-sporterized, ammo, military type Mauser action, $50. 213-530-5076.

Love Seat, gold brocade victorian, $250. 213-832-3502.

Home, tri-level, 2,500 sq. ft., Southshores, P.V., 4-bdrm., 2½ baths, dining, den, rumpus rms., bltin kitchen w/bkfst. bar, $52,500. 213-831-3050.

Aquarium, 15-gal. Pemco w/hood, access., $12. 714-962-4235.

Snow Chains for VW, 5.60-15, never used, $10. 213-371-3615.

Sailboat, 15′ Glen L 15, trailer, cover, $700. 213-963-5524.

Wig, Brenda style, brown, short, synthetic hair, worn twice, $12.50. 213-329-6748.

Stereo Hi Fi, Norelco solid state, 2 sep. spkrs., 6 w. ea., walnut, $75. 213-673-0678.

Baby Buggy, collapsible, $20. 213-322-2364.

Bed, dble., Spanish Mediterranean headboard, $25. 213-379-4774.

Catamaran Sailboat, 14′ Hobie, trailer, many extras, $995. 213-397-5448.

Camper, 1969 cabover, 8½′, sleeps 4, 20 gal. water tank, 3-burner stove, 75 lb. ice box, $600. 213-376-5156.

Miscellaneous For Sale

Bedroom Set, Thomasville Shalimar, walnut & pecan, dble. bed, h/board w/frame, dble. dresser & mirror, 2-drwr. nightstand, $250. 213-670-6090.

Auto Body, 1956 Chev. wagon, $50. 213-379-1759.

Bumper Racks for motorcycle, $10. 213-679-4863.

Motorcycle, 1970 SL 90 Honda, $300. 213-377-5897.

Motorcycle, 1970 Honda Trail 90, licensed for street, $300. 213-327-8927.

Motorcycle, Honda 50, tools, helmet, $115. 714-633-5521.

Cement Mixer, 1⅓ cu. ft. mix cap., Sears wheelbarrow type w/elec. motor, $80. 213-377-5853.

Surfboard, 6′ 10″, $95. 213-375-6397.

Stereo Theater, 1960 Magnavox, 21″ b&w TV, AM-FM radio, changer, dk. mahogany, $150. 213-721-6764.

Golf Irons, complete set, matched, Power Bilt, incl. wedge & Arnold Palmer putter, $60. 213-324-3690.

Jackets, men's sizes 42 & 44, $10 ea. 213-675-2772.

Knitting Machine, Knitking, 6 yrs. old, extras, $150. 805-498-2307.

Golf Clubs, 4 woods, 10 irons, $50. 213-454-1953.

Parakeets, 6 wks. old by Christmas, $5. 213-378-3219.

Metal Lathe, 12″ swing, w/access., $400. 714-897-5874.

Coat, size 10, imitation leopard, dress length, princess style, $25. 213-833-7819.

Dryer, RCA Whirlpool, elec., used 6 mos., $30. 714-776-2620.

Motorcycle, 1971 SL125 Honda, $450. 714-524-1376.

Home, corner, 2-story, 4-bdrm., 2 baths, cpts., dps., bltins, across from new Los Cerritos shopping center, $32,500. 213-860-3022.

Piano, Gable-Nelson, walnut, spinet, bench, $385. 213-541-1638.

Guitar, folk, $30. 213-377-6648.

House, 2-bdrm., extra wide lot, 60x141, room for 2 units in rear, No. Inglewood, $21,000. 213-671-6692.

Golf Clubs & bag, $30. 213-376-6489.

Hardtop, for 1963-67 Corvette, $150. 213-631-3008.

Washing Machine, Kelvinator, 6 yrs. old, $25. 714-879-9616.

Organ, Wurlitzer electronic, mod. 4150, 2 manual w/floor pedals & chord access., sep. mod. 45 Leslie spkr., $850. 213-363-2113.

Mobile Home, 48′ x 8′, new awning & refrig., cpts., $2,700. 213-973-1007.

Camera, 35 mm Yashica, f1.8, 1-1000 spd., coupled expos. meter, case, electronic flash, $60. 213-375-6467.

Dryer, elec., Kenmore, coppertone, 2 yrs. olds, 220 V., $75. 213-679-8534.

Umbrella Tent, 9′ x 9′, alum. supports w/ canopy, $20. 714-523-5315.

House, 3-bdrm., 2 baths, pool, assume 5¼% loan, $24,450. 213-896-7235.

Acreage, 5 acres, Adelanto City, water & elec., $100 dn., $100 mo., $10,000. 213-378-1026.

Dishwasher, Hotpoint Deluxe, portable, cutting board top, $75. 213-863-3900.

Piano, upright, recently modern refinished, $185. 213-696-7529.

Saxophone, tenor, Noblet, $150. 213-423-1363.

Motorcycle, 1971 Yamaha Enduro 125, extras, $435. 213-835-9149, 213-834-3163.

Refrigerator, $5. 714-832-7014.

Tire, Goodyear custom wide tread, polyglas F70-14, belted, $25. 213-371-5037.

House, 3-bdrm., dble. bath, patio, dps., bltins, $33,000. 213-830-1216.

Mattress, king size, box springs, steel frame, $125. 213-324-4845.

Mobile Home, 1970, 12 x 60, 2-bdrm., 1½ baths, awnings, skirting, metal shed, many extras, $6,900. 714-678-2542.

Pool Table, 9′, w/thick slate, all access., $495. 213-374-6584.

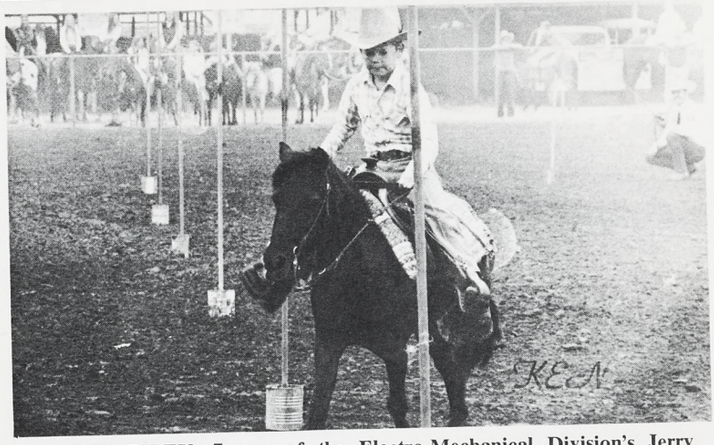
Surfboard, semi-gun, 6′ 6″, $55. 213-823-1788.

Fish Tanks, 30, 20, & 5 gal., all equipment, $40. 213-398-9100.

Bedroom Set, 12-pc., Mediterranean, $500. 714-826-0109.

Telephoto Lens, 135 mm Komura, exacta mount, $40. 213-323-8797.

Acreage, 10 acres, near new airport, Apple Valley, $7,000 ea. 5 acres or $13,000. 213-327-4356.



TOMMY RILEY, 7, son of the Electro-Mechanical Division's Jerry Riley, circles final pole to take fourth in recent pole bending contest. He seeks to catch his sister, Kathy, the current state champion. The pony is named Smokey.

Miscellaneous For Sale

Trail Bike, Honda 55, new top end, trail sprocket kit, car rack, $145. 213-374-4780.

Pups, collie, AKC, 8 wks. old at Christmas, $75-$125. 213-370-4475.

Motorcycle, 1969 Honda 350 street scrambler, $495. 213-329-2842.

Harmonium, antique, cherry wood, $195. 213-346-3751.

Shopsmith, Mark 7, some extras, $300. 213-676-8791.

Pup, poodle, AKC, apricot, female, small miniature, $75. 213-866-4104.

High Chair, Cosco, $10. 213-676-6738.

Sewing Machine, cabinet model, elec., zig-zag & sewing discs incl., $45. 714-772-3182.

Surfboard, Rick, 7′ long, 18″ wide, $50. 213-374-8608.

Record Player, G.E., 4-spd., stereo, w/matching 100 album cap. stand, detach. spkrs., lifetime diamond stylus, $85. 213-376-2725.

Mini Bike, Bonanza 1200, $110. 213-675-0490.

Flotation Tires, set of 11.5 x 6, mounted on wide whls., fit VW dune buggy, $90. 213-821-4180.

Stamp Books, Blue Chip, 30 books, $2.50 ea. Box 1801.

Tape Deck, Muntz 4 & 8, converter, 25 tapes, carrying box, $60. Box 1802.

Travel Trailer, 22′ Santa Fe, self-contained, air cond., $2,895. 805-498-6349.

Dog, 2½ yr. old female, purebred, Australian shepherd & 8 mo. old pup, female, $35. 213-378-1793.

Chain Saw, McCulloch, 250 series, 2½ yrs. old, $125. 213-679-5701.

Mini Bike, 3 h.p., $65. 213-676-0666.

Bedsteads, twin, wood, dresser & night stand avail., $12.50 ea. 213-377-5936.

Tape Recorder, Concord transistorized stereophonic 550, 3-spd. w/instant stop, 4-track stereo w/sep. vol. controls & VU meters, $89. 213-679-2864.

Furnace, forced air, American Standard, nat. gas, 100,000 btu input, 3 yrs. old, little used, $50. 714-871-7625, 714-879-4692.

Condominium, 1,400 sq. ft., 2-bdrm., den, 2 baths, all elec., sub-parking, many extras, 10 mins. to Hawthorne, $29,900. 213-674-1400.

Cabin, modern, Lake Gregory, near lake & stores, terms, $10,000. 213-821-8150.

Divan & matching chair, Kroehler, blue, $60. 213-375-6114.

Fireplace, standing-type, 65″ high, w/all hardware, screen & grate, $200. 213-378-9660.

Console, Admiral, stereo FM-AM radio-phono. w/6 matched, balanced spkrs., $100. 213-323-5740.

Motorcycle, Yamaha, 1971 Enduro, 90 cc, $350. 213-676-2854.

Door, 32′ x 6′ 8″, $4. 213-644-0003.

Dryer, Whirlpool, nat. gas, 25,000 btu/hr. $40. 213-375-5316.

Skis, Hart 190's, Nevada toe, Solomon cable heel, $50. 213-644-9257.

Baby Buggy, Hedstrom, converts to car bed or stroller, $49.95. 213-534-0346.

Wanted to Buy

Bicycle, boy's Schwinn. 213-676-6382.

Photographic stereo equipt., camera, projector, film mounting equipt. or supplies. 213-831-6533.

Wanted to Buy

Dinnerware, Sango, boutonniere pattern, need replacements. 714-535-6228.

Hardtop, for 1968 Corvette convert. 213-326-7528.

Air Compressor, portable w/tank, elec. motor, 1½ to 3 h.p., 115 or 220 V. 213-457-2057.

Fender Skirts, for 1941 Cadillac Fleetwood 60 Special sedan. 213-299-0938.

Corvair, 1963 Spyder. 213-374-3702.

Table, old, round, oak. 213-673-4322.

Bicycles, man's & woman's, 3 or 5-spd. 213-545-2577.

Free (To Be Given Away)

Dog, white, male, pekingese, thoroughbred, all shots. 213-378-7846.

Rentals Offered

Cabin, 2-bdrm., sleeps 8, Big Bear-Moonridge area, f/place, TV, bltin AM-FM radio, lge. kitchen, $90 wk., $40 w/end. 213-541-3000.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, $120 1 wk., $200 2 wks. 213-375-2255.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

House, 4-bdrm., 1 yr. old, 2,350 sq. ft., liv. & family rms., cpts., playrm., dps., heated pool, avail. in Jan., $42,500 or $395 mo. 213-860-9271.

Apt, 2-bdrm., Hawthorne, across from Aircraft Div., unfurn., water & garbage pd. $140 mo. 213-675-7748, 213-676-4676.

House, 4-bdrm., 2 baths, cpts., dps., bltins, children o.k., dble. car gar., patio, fenced yard, $275 mo. 213-329-6697.

Apt, 1-bdrm., ocean front, cpts., dps., utilities pd., Playa del Rey, $185 mo. 213-823-5526.

Mobile Home Space, Vogue Mobile Manor, Hemet, $56 mo. 714-544-7240.

Condominium, Mammoth Mountain, sleeps 5, complete kit. facilities, sauna, pool, rec. room, $40 w/end, $100 wk. 213-785-1405.

Personals

My sincere thanks for your help & expression of sympathy during the prolonged illness & passing of my husband. BOBI ROTHROCK.

Disabled employee needs transportation to & from work from Santa Monica, 1st shift, Electronics Haw. ext. 432, 213-395-9285.

Share Ride, Woodland Hills & vicinity to Anaheim, 1st shift, Anaheim ext. 1056, 213-347-1712.

Share Ride, 8 a.m.-4:42 p.m., meet anywhere in Glendale or La Crescenta, Aircraft ext. 1006, 213-248-9654.

Anyone interested in 1 week ski trip to Park City, Utah, in February call 714-828-4853.

We wish to express our deepest appreciation to our many friends who made our retirement from Northrop such a happy occasion. MICHAEL & MARGARET BARTMUS.

My sincere thanks, NRC, for the lovely flowers. ANGELA BRANNFORS.

For Sale or Trade

Fiat 1200, 1962 convt., $450 or trade for small wagon of equivalent value. 213-633-2990.

NSI'S MALERICH

Antarctic Duty Commended

Francis J. Malerich, NSI Eastern Operations office, recently received the Navy Commendation Medal for achievements as special project officer with U.S. Naval Support Forces, Antartica.

During his assignment with the Antarctic Command, the citation said, Mr. Malerich coordinated and implemented revision of the Antarctic programs' support agreement between the National Science Foundation and the Department of Defense.

He also acted as interim comptroller and designed a financial reporting system compatible with that of both sponsoring agencies. This included revising the financial reporting system and a consolidated budget for the new fiscal year.

Mr. Malerich retired from the Navy Supply Corps and joined Northrop Services, Inc., Eastern Support Operations, Washington, D.C., working on contracts involving management information systems.

DISCOUNT TOYS ARE AVAILABLE

Arrangements have again been made by NRC for Northrop employees to purchase Christmas toys at greatly reduced rates through wholesale distributors.

Northrop identification must be shown to make purchases at Southwestern Novelty Co., 330 South Los Angeles St., from 9 a.m. to 4 p.m., Nov. 20 and 10 a.m. to 4 p.m., Nov. 21; and at Pul-Wall, Inc., 1035 South Grand, from 9 a.m. to 5 p.m., Dec. 4 and 10 a.m. to 5 p.m., Dec. 5. Both locations are in Los Angeles.

NRC ELECTION

The NRC has elected its Executive Council to guide the clubs during 1972, according to Ed Mosher outgoing council president. Duane Baptiste is the new president. Ray Ebbert is vice president. Donna Clark is treasurer. Mid Williams is secretary. And Roy Steinestal is sergeant-at-arms.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

JOE SALINE, commissioner, Garden Club, checks the height of his 14½ foot corn stalk with club members Sefie Garcia, Charles Fox and Betty Schulz. The stalk is two feet higher than one which a Los Angeles paper called one of the tallest grown in this area.

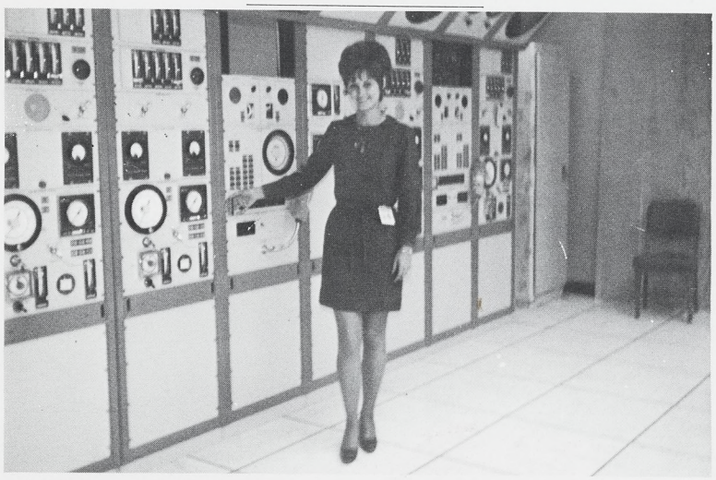
Community Involvement

Electro-Mechanical personnel continue to involve themselves in community activities. Among the latest are:

HENRY W. WEDAA, who has been named a representative of the Orange County Division of the League of California Cities to the Orange County Growth Policy and Development Strategy Program Committee. The committee will work for coordinated public and individual initiative in shaping county growth in relation to the future environment.

GENE JESSICK, manager, Security and Plant Protection, was one of the organizers of the recent "Business Protection Seminar" of the Anaheim Chamber of Commerce. Mr. Jessick is co-chairman of the Chamber's Crime Prevention Committee and its representative on the city's Vandalism Committee.

JOHN GUNDERSON and GORDON BRICKEN, project engineers, both addressed a recent meeting of the Institute of Electronics Engineers. Mr. Gunderson explained the Northrop "Mandatory Vehicle Emission Inspection and Maintenance Study" made for the California Air Resources Board. Mr. Bricken told how the ECOLOG-1 noise monitoring system provides airports with a means of pinpointing and enforcing noise abatement procedures.



SANDRA WOODARD, a secretary in Deep Ocean Engineering at Panama City, shows off the Outer, Dry, Center and Wet Consoles which the Electro-Mechanical Division built and installed in the third floor control room of the U.S. Navy's Ocean Simulation Facility. The consoles will be used to monitor and control the wet and dry chambers. All consoles have been installed in the control room and final assembly is under way.

SERVICE PINS

Six division employees reached the 15-year milestone with Northrop in October. They are Leffel Curry, Electronics Assembly; Charles Felder, Graphic Arts; Grace Heath, Personnel Administration; Yvette Michaud, leave; Richard Shave, Management Systems; Natividad Ybarra, Electronics Assembly.

Eight others completed 15 years in November. They are Virginia Carmean, Electronics Assembly; Leonora Herbst, leave; Genevieve Hannah, Electronics Assembly; Walter Hill, leave; Estelle Hoaglin, and Elena Huerth, Electronics Assembly; Grace Wieser, Cost Information; and Mildred Williams, Methods Engineering.

Cars Needed For Testing

Olson Laboratories emission test facility again needs cars to test for a new Federal Environmental Protection Agency program.

A limited number of cars from 1957 to 1971 are needed. Makes include Buick, Cadillac, Chevrolet, Chrysler, Dodge, Ford, Mercury, Oldsmobile, Plymouth, Pontiac, AMC, imports and Volkswagens.

Cars previously volunteered for other Northrop-Olson programs are not eligible. Untested vehicles are required.

In return for use of vehicles, owners will be given:

- Payment of $5 for use of your car
- Free emission test of your car
- Free tuneup based on results of emission tests.
- Free use of fully insured loan car, with initial tank of gas.

For additional information and specific model and year cars needed, call Arlene Forker at ext. 513.

Sixteen Reach 20 Years of Service

Sixteen Electro-Mechanical Division employees reached the 20-year mark in Northrop service during October.

They are: Donald Attwater, Procurement; Wallace Ashby, Finance and Accounting; Boyd Bacon, Plant Maintenance; William Baker, Electro-Optical; Jack Blonk, Procurement Services; Vincent Duarte, Assembly Inspection; Paul Faranda, Industrial Relations; Haruo Ichikawa, Receiving Fabrication; Arleene Lahn, Plant Security; William McNabb, Warehousing Operations; Lee Mueller, Process Engineering; Harold Reck, Plant Engineering; James Rollins, Standards; Elaine Steiner, Tool Design; William Sims, Material Inventory Control; and Norma Terry, Electronics Assembly.

GUN CLUB MEETS

The NRC Gun Club has voted to combine business meetings and the regular monthly shoots as a convenience to members, according to Charles Fox, club commissioner.

The club shoots on the Saturday following the first Tuesday of each month.

NORTHROP NEWS

President Jones Sees Upswing in Economy

Northrop President Thomas V. Jones expressed his confidence in the United States economy and said that Northrop has the resources to participate in the anticipated economic upswing.

Speaking before approximately 200 people at the company's annual shareholders meeting Dec. 14 at the Aircraft Division, Mr. Jones explained that although he doesn't see any substantial improvements in company sales until 1973, the coming year may bring with it a "pleasant surprise."

"The potential for growth is certainly there and I am very confident that we have the resources—financial, technical and human—to take maximum benefits from our opportunities," he said.

In a year when both sales and earnings suffered a decline, Mr. Jones pointed out that, except for 1970, sales for fiscal 1971 were the highest in the company's history and earnings were the fourth highest in the 32 years the company has been in business.

He cited two major conditions as the reasons for the decline: cutbacks in the production rate for 747 fuselages, and the reduced pace at which certain aircraft programs were scheduled for production.

Prospects Good

Mr. Jones emphasized, however, that the company has a broad variety of programs and products which can achieve growth when production schedules are stepped up.

Among those he talked about were the F-5E International Fighter Aircraft and the Air Force A-X—attack experimental—program.

"Even before production flight test and based only on the designs for the F-5E, we find that this new aircraft is attracting a good deal of favorable interest by countries outside of those it is primarily intended for," he said. ". . . we think that this interest will express itself in substantial sales above and beyond the basic program."

Mr. Jones explained to shareholders that Northrop is one of two finalists—along with Fairchild Industries — in the A-X program.

"We are giving this program a very high priority in our efforts because if we win and if the government goes ahead with the program, it could mean very considerable volume," he stated.

He added that Northrop's entry in the "fly before buy" program should be flying some time in April or May 1972 and that the Air Force flying competition should begin later that same year.

Another major aircraft program cited at the meeting by Mr. Jones was the company's P-530, a high-performance air superiority fighter designed for use by allied nations in the 1975-1990 time period.

"We have quoted a fixed price for the P-530 of $3 million per airplane in 1970 dollars," he said. "As in the case with a commercial airliner, the price includes the cost of designing and developing the airplane. There is no requirement that any government finance development. These costs will be recouped out of the sales of airplanes at the established price."

With a commercial approach to the P-530, sponsored by reliable and respected companies, po-

(See JONES, page 8)

HE ASKED AN INTERESTING QUESTION
Mr. and Mrs. E. L. Hunnicutt with President Thomas V. Jones, center.

Arrangements Made For The Acquisition of George Fuller Company

Northrop Corporation has completed arrangements to acquire the George A. Fuller Company, a leading building construction firm, for an undisclosed cash sum, Thomas V. Jones, Northrop president, has announced. No public financing is involved in the transaction.

The Fuller Company, a privately owned concern with headquarters in New York, has annual sales currently in excess of $150 million a year. Northrop, operating on a world-wide basis with annual sales of over $600 million is engaged principally in the business of aircraft, communications and electronics.

Noting that Northrop will provide both management and financial support in order for Fuller to maintain its position of leadership and to assure future growth, Mr. Jones announced the appointment of Robert W. Page as president and chief executive officer of the Fuller Company. William V. Lawson, president of Fuller since 1964, is resigning to take another key position in industry. Mr. Page has been a vice president of Rockresorts of New York City, a Rockefeller Family and Associates company.

Mr. Page has been with Rockresorts since 1966. Previously he was for six years with the Bechtel Corporation where he was in charge of its international real

(See FULLER, page 8)

SHAREHOLDER LEARNS

How $600 Could Grow to Over $17,000

By asking a single question, E. L. Hunnicutt, an original Northrop shareholder, demonstrated to those attending this week's annual shareholders meeting that $600 invested in Northrop stock 32 years ago now could have accumulated, with dividends and stock splits, aggregate value of more than $17,000.

Mr. Hunnicutt rose during the question-and-answer session to quote from a letter he had written to the company earlier:

"In 1939, I bought 100 shares of Northrop stock for $5, plus $1 brokerage fees, for a total of $600. I now have, through stock dividends and splits a total of 484 shares. In relation to the original investment of $600, exactly how many dollars have I been paid over the years?"

President Thomas V. Jones replied that Mr. Hunnicutt's original investment had drawn dividends totalling $8,278.42. At the current market value of $20 per share, his holdings are now worth approximately $9,000. Assuming all dividends were retained, the total investment, including stock dividends, would be worth nearly $18,000.

By comparison, had Mr. Hunnicutt placed his $600 in a savings account, at five per cent interest, his investment would now be worth only $3,000, which is less than one third the current value of his Northrop stock shares alone.

Critical Letters Shock Personnel

Many Northrop employees were shocked by a letter critical of the Shah of Iran and the 2,500th Iranian anniversary celebration which appeared in the Nov. 22 issue of TIME.

This letter, purportedly signed by a Page executive in Iran, was the work of an impostor or impostors.

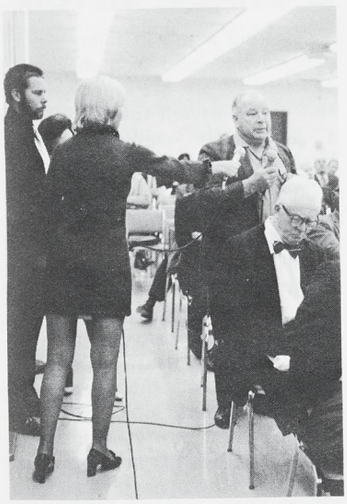
A second letter, also a forgery, was published in some international editions of NEWSWEEK.

Both TIME (Dec. 6) and NEWSWEEK (Nov. 29) have published corrections of these letters and have acknowledged that they were published in error.

NORTHROP PRESIDENT Thomas V. Jones tells shareholders that their company is in sound financial condition and predicts a business turnaround in 1973.

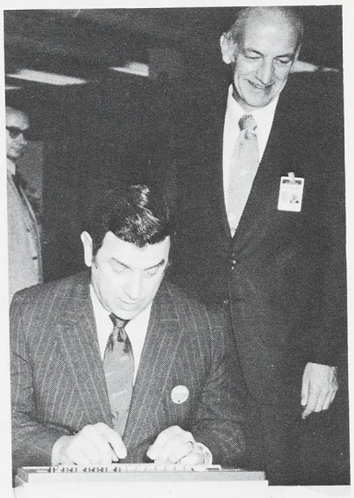
HIGHLIGHTS
Annual Shareholders Meeting

MR. AND MRS. LYLE B. SCOTT, shareholders in Northrop for the past 12 years, are signed in by W. D. Wahl, left.



JAMES H. BUSH, with microphone, thanks Northrop for its excellent pension plan and the way the company takes care of its employees.

SHAREHOLDER WILLARD WADE inspects a Ventura Division drone on display at the annual shareholders meeting. Photos by Dave Saldana



WELKO GASICH, general manager, Aircraft and Ventura Divisions, tries out DIGISPLAY exhibit with help from Dr. H. Q. North.

DIGISPLAY operation by Laura Martinez intrigues shareholders Mr. and Mrs. Harold Barbey. DIGISPLAY is a flat panel TV display that employs electron beams instead of a cathode ray tube.

MR. AND MRS. WILLIAM H. JUSTICE stop to view TISEO, Target Identification System Electro-Optical, photo display shown at the shareholders meeting.

MEMBERS OF THE SPECIAL EVENTS Committee of NRC, George Garner, Donna Clark and Duane Baptiste, select children's gifts for the big Christmas Party set for Sunday, Dec. 19, at the NRC Clubhouse. Gifts will be provided for all children up to ten years of age. In addition there will be rides, free refreshments and a visit from Santa Claus.

Season's Greetings

To the Men and Women of Northrop:

The Holiday Season—with its bustle and spirit of celebration—also brings a time for reflection upon the accomplishments of the past year and upon the prospects for the future.

In 1971 Northrop advanced on many fronts. Each forward step required extra effort, ingenuity and cooperation. This determination, strength and willingness to do more when it is needed most is a Northrop tradition. It is a spirit I admire greatly and one that makes me proud of every man and woman of Northrop. And it fills me with confidence that the years ahead will be better for us all.

To each of you, and to each member of your family, Mrs. Jones and I extend our personal wishes for a joyous Christmas and a New Year of good fortune, good health and happiness.

Thomas V. Jones
President

To Electro-Mechanical Division Personnel:

The passing year was highlighted by important movements of the division into new activities such as TISEO, Environmental Systems and Ocean Simulation Facility Instrumentation. Acquisition of these new programs, as well as your outstanding work on our continuing programs, is directly in the Northrop tradition of doing each job a little better than required.

This same spirit, I am certain, will carry us to greater success in the future. As you leave for your traditional long Northrop year-end holiday, please take with you my sincerest thanks for your contributions this year and my best wishes for the happiest holiday season for yourselves and your families.

Frank W. Lynch
General Manager

Division Commended For Poseidon Launch

Division contributions to the successful launch of the 39th Poseidon C3 Fleet Ballistic Missile were commended in a message sent to Frank W. Lynch, vice president and general manager, by J. W. York of Lockheed/Sunnyvale.

"The completely successful launch of a Poseidon missile from the SSB/N/635, Sam Rayburn, marks the culmination of the OSDP contract flight performance period," the commendation said.

"The record of performance and reliability achieved during this series of operations has been truly remarkable. This achievement was possible only because of the exceptional team spirit demonstrated by you and your personnel in meeting or beating the Poseidon OSDP contract objectives."

The Electro-Mechanical Division furnishes the Missile Test and Readiness Equipment which is used in the submarine to determine the state of readiness of the Poseidon missiles.

The test firing was made from a submerged submarine off the coast of Florida near Cape Kennedy. This was the 39th test firing of the missile and the 19th submerged launch.

At the Electro-Mechanical Division the Poseidon program is under the direction of Ralph C. Dix.

HOLIDAY PAY SCHEDULE SET

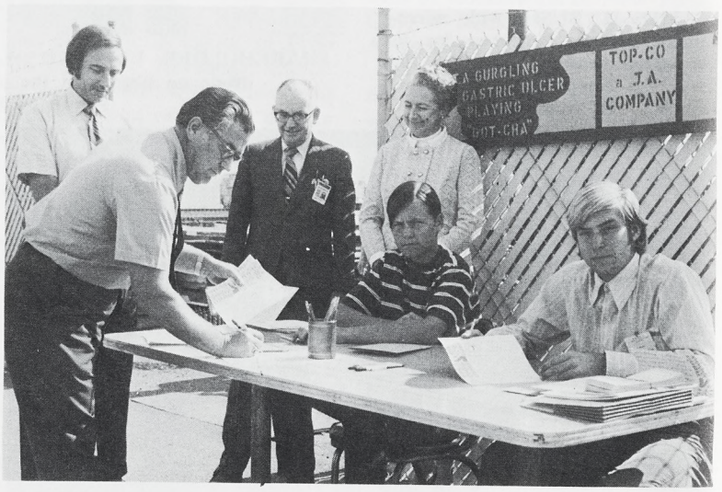
The annual Northrop yearend holiday begins Dec. 24 for division personnel and runs for 10 straight days. Normal work shifts will resume Jan. 3.

The regular paycheck will be distributed on Dec. 17 and two others will be available on Dec. 23, the last day of work for the year. First paycheck of the new year will be distributed Jan. 7.

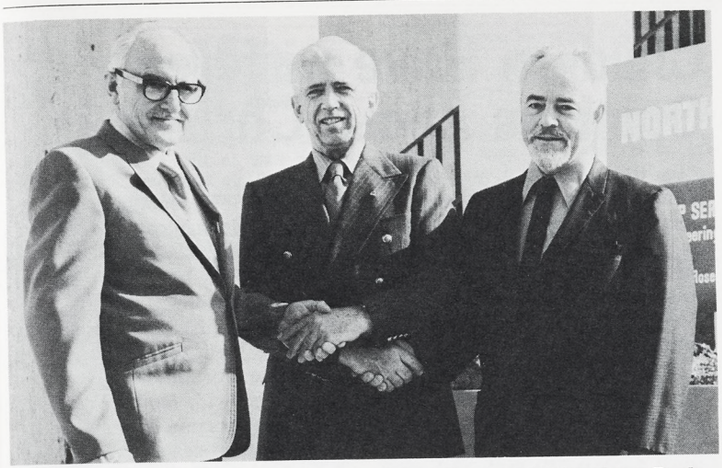
'Selling Yourself' Is Subject of Talk

"Getting a job in today's business environment is a marketing problem. You are the product and you must sell that product to a prospective employer," Paul Faranda, manager of Industrial Relations, told 50 members of the Marketing Club of California State College, Fullerton, in a recent address.

Mr. Faranda spoke to senior and graduate students of the college on the changing environment and how it affects employment. His talk included what today's employers look for in an applicant and how the job seeker should conduct his interview with company employment managers.



TOPCO Junior Achievement company representatives Lee Rose, VP Mfg., and Steven Jolitz, VP Sales, take orders for their company's products during a recent visit to Anaheim. Chuck Fellow orders a "Got-cha" game while Alan Steldley waits in line to buy a charcoal starter, the company's other product. In back are Harry George, center, Sales adviser, and Betty Duba, production adviser. Other division people assisting the young businessmen are Ray Ebbert, management adviser; Dudley Hosea, financial; Herb Felix, alternate; and Bob Boostrom, division coordinator. The Junior Achiever program teaches young people the principles of free enterprise through operation of their own company.



ARTHUR DUGDALE, center, receives goodby best wishes from Buck Buckbee, left, and Bruce Linton.

Art Dugdale to Sail in Spain

"My jobs with Northrop have been so interesting that my retirement problem was to find something to do that was equally interesting," said Arthur Dugdale when he retired from Northrop Services Inc.'s Ocean Engineering Office in San Diego Dec. 1.

And his idea of "something equally interesting" turned out to be a move to Spain's Canary Islands where he will join Hank Young, former Northrop DSSP employee, in sailing a 50-foot sloop on charter voyages.

Some Assignment

Mr. Dugdale's first job with Northrop was when he was given a desk and told "to design, build and deliver Snark control equipment on schedule." He next headed the Aircraft Division's Electrical Design group and then was in Production Scheduling and Planning on Skybolt.

After cancellation of the Skybolt program he left the company and built houses in the Lake Tahoe area until he returned to the Electronics Division to work on the C-5 Inertial Doppler Navigation Equipment. Next he was with Northrop Space Labs as Reliability Engineer on the Bio-Satellite and the JPL Mariner Mars programs. He then joined the Electro-Mechanical Division's Deep Ocean Engineering group which led to a two-year assignment in San Francisco to assemble and install a technical library aboard the "Elk River" (IX-501), a range support ship being readied to support the test program for the Navy's Deep Submergence rescue vehicle.

Art moved to San Diego when the IX-501 joined the test program at Ballast Point.

TWENTY YEARS

Twelve division employees reached the 20-year mark in Northrop service in November. They are Ardis Adams, Configuration and Data Management; Robert Cornelius, Tool Design; Donald Crawford, Plant Maintenance; Arthur Johnson, Cash Management; James Linn, Receiving Fabrication; Matthew Majka, Tool and Test Equip. Mfg; Leo Miller, Manufacturing Liaison; Nick Niccoli, Production, Mech. Assembly; Philip Reeder, Test Programming; Frank Rangel, Tool and Test Equip. Mfg.; and Kelvyn Smith, Technical Publications.

Club Shows Noon Movies

Movie fans now have an NRC club of their own at the Electro-Mechanical Division. A Noon-Time Film Presentation Club has been organized under the commissionership of Carl Mengert.

Shows are presented three times a week, Tuesdays, Wednesdays and Thursdays, in the Y-1 Demonstration Room during the 11:45 to 12:30 lunch period.

On Tuesdays and Thursdays the club shows general interest films provided without cost by Sterling Films Association. Typical subjects include "Jet East to Africa," "The Other Face of Freedom," and "The Moebius Flip."

Wednesdays are reserved for films made by club members and other Northrop employees. "Among the interesting films in this group have been Dudley Hosea's running the bulls in Spain, Theron Ashby's shots of Mexico, Dr. R.D. Tooley's pictures of Venezuela, and Chet Niles' views of Scotland."

Others who have shown films and slides are Ann Mannon, France; Jack Flannagan, Europe; Jim Auest, Lake Powell; Bob Peck, Jamaica; Charlie Fox, British Columbia; Phil Reeder, Hawaii; and Norton Kinder, Pompeii, among others.

"Northrop people really get around," Mr. Mengert said. "And we are always looking for others to join us in presenting their films and slides."

BLOOD BANK

The semi-annual Red Cross Blood bank will be Jan. 20, according to Esther Jones, industrial nurse. Donors are urgently needed and all donations are credited both to the account of the individual and to Northrop.

Baptiste Moves To Employee Svs.

Duane Baptiste has transferred from Manufacturing Cost Control to Industrial Relations and will succeed Harry Belcher as Employee Services advisor upon Mr. Belcher's retirement in February, according to Bob Boostrom, manager, Employee Relations.

In his new position Mr. Baptiste will be responsible for processing retirement counseling, savings plans, Credit Union, insurance administration and personnel activities. In addition he will serve as I.R. representative for NRC.

Mr. Baptiste has served as commissioner of the NRC Basketball Team for the past three seasons, was commissioner for Special Events last year and was elected president of the NRC Executive Council for 1972.

As a result of his appointment to his new position, Mr. Baptiste resigned as NRC Executive Council president. Ed Mosher was elected to fill the unexpired term.

Memories of Christmases Past

Every Christmas is memorable in its own way, but there is always one that stands out in one's mind. Electro-Mechanical Division personnel are no exception. Here are some of their memories of Christmases past:

Sefie Garcia, for example, remembers best the Christmas of 1946. Her mother was in the hospital and as the oldest girl at home she had to cook for the family. "All I could think of was that I'd be doing all the cooking, which meant making tortillas twice a day during the week and three times a day on weekends. But it was well worth it," she said. "Because Mom brought home the nicest possible present for us — a baby brother — the fourteenth member of our family who was born Christmas Day."

For **Jim** and **Dee Melatti** their most memorable Christmas was last year when a big parade splashed through their back yard. Splashed? Of course. The Melatti's live on a 27-foot cabin cruiser in Huntington Beach harbor. The parade was a convoy of gaily decorated boats that celebrate Christmas each year with a water parade.

Marveline, wife of **Marvin Wiebe,** remembers best the Christmas in the late Thirties when she received the least in a material way. Her parents had just invested every cent in their own business and there was nothing left to buy presents for four children.

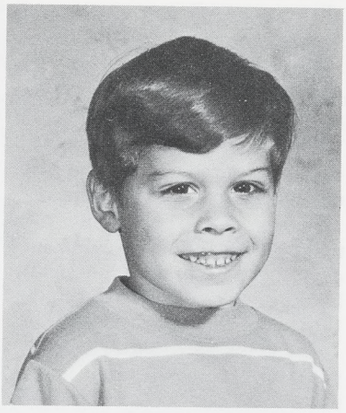
"We spent the day at Grandma's," she recalled. "The only presents under the tree were some paper dolls for the girls and books on the West for the boys. Our other gifts were the delicious odors of a Christmas dinner, home baked goodies, and a house-filled with love. It was more than enough, and I've never forgotten it."

Carl Mengert's most memorable Christmas memory is the time he was scheduled tenor soloist in a presentation of Handel's "Messiah" 12 years ago.

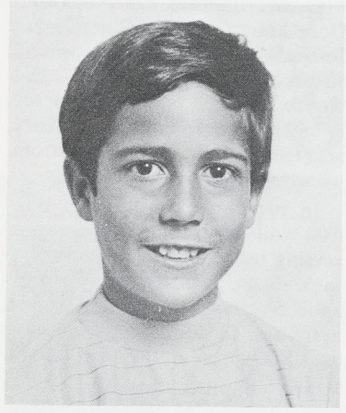
"I got laryngitis," he recalled. "The director could not get another tenor soloist on such short notice, but just before the performance my throat cleared. The performance came off smoothly, but when it was over my throat tightened up again. I could hardly talk for two weeks.

"I can't help but feel that I had a little help that day and I think about it each time I sing "Messiah." I'll be soloist again this year at the First Presbyterian Church, Orange, on Dec. 22. I know that unforgettable day will again be in my mind."

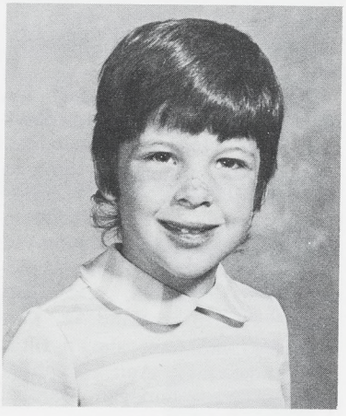
Sheri Nicole



Mark



Rick



Donna

Children Have Different Opinions About Christmas

In this period just before Christmas the very young are living in a wonderful world of anticipation. Each little mind has formed its opinion as to what it is all about. Northrop News, with a big assist from fathers and mothers, queried a cross section of youngsters to find out what Christmas means to them.

Sheri Nicole, 5, daughter of Paul Dunn of the Electronics Division, put the whole season into its proper perspective with: "It means Jesus' birthday."

Mark, 6, son of Frank Balaszi of the Ventura Division, quipped: "When Santa comes he only brings one toy. He can't make lots of toys for each person because there are too many children. I hope he brings me a train set." Mark added, however, that his mommy and daddy provide him with many other toys.

Rick, 11, son of Al Tiberio of the Aircraft Division, brought up another angle with: "Christmas means two weeks out of school and having a great Christmas morning."

Donna, 7, daughter of the Electro-Mechanical Division's Chuck Dempsey, added these thoughts: "Oh boy! Fun! You get a week off from school for vacation. People give you presents and you give them some. You get to go to the store and get your picture taken with Santa. We get to put up the same Christmas tree every year because it's a little fake one and we make decorations at school."

NORTHROP MEN GUIDE GRIDDERS

Two Hawthorne Junior All-American Football teams in the PeeWee Division have relied on Northrop talents in gaining championships.

In addition to the play of Northrop sons, the Huskies of the Pacific Coast Division were coached by Northrop's Terry Birdsall who was assisted by Dan Rich, Jim Rasnick, Mike Henson, Jim Brenton and Harry Darnell.

The Giants, winners of the Rocky Mountain Division, were coached by Northrop's Dale Hahbeck with Bill Green, Deb Jones, Fred Hynes and Ted Johnson as assistant coaches.

TAX CHANGES

The base for Social Security deductions goes up from $7,800 to $9,000 in 1972 with Northrop paychecks to be distributed Jan. 7 reflecting the change.

Northrop personnel earning the $9,000 base, or more, have been paying $405.60 annually. Beginning in 1972 they will pay $468. Northrop matches the amount paid by each employee.

FUN IS HIS WHEN

John Burke Doubles As 'Strolling Santa'

"Christmas may be the biggest day of the year to children, but it is Santa Claus who has the most fun."

This is John Burke, Electro-Mechanical Division Security office, speaking. While John isn't Santa, he has stood in for the North Pole toy maker enough to know how the old boy feels.

While John has acted as Santa's stand-in at division parties and at schools, his major activity is as a strolling Santa, wandering around at Christmas like the choraliers who go from house to house.

His adventures last year at Rancho Cardova where he was visiting are typical of his activities. In strolling in costume through the area he stopped at all houses whether he knew the owners or not. "You're welcome everywhere," he reports. "Nobody turns Santa away."

One time a little girl demanded to know where the reindeer were. "I hope they'll be along soon," John replied. "And that was no lie for I did hope."

When he left, he stomped his feet hard on the walk, shook some bells and shouted, "Ho! Ho! Ho!" and beat a hasty retreat before she could look out the window and be disillusioned by the sight of Santa walking.

He recalls another house where the mother told him her daughter and the neighborhood children had decided that Santa was a myth, but when she called the child, the little girl took one look at John in his Santa suit and fled, crying, "If I don't get to bed, he won't leave any presents!"

Her parents took a picture of John and the child took the Polaroid shot around the next day to show her friends that they were wrong. There really was a Santa after all.

On another occasion he visited a school where the children were convinced that he was their janitor who had a similar build. He let them think so, but when he got ready to leave he stuck his head back in the door to say goodby and had with him the man they thought was behind the Santa face. "I left them with their mouths open, wondering who I really was," John said.

John got into the strolling Santa hobby twenty years ago while with the U.S. Navy in Japan. On Christmas day in 1951 he and two other sailors bought $70 worth of candy at the Ship's Store and passed it out to children on the streets of Sasebo.

"As I recall," he said, "that was the wettest Christmas day in the town's history. We got soaked, but the children's expressions kept our spirits from getting damp. That's when I first learned that the person who has the most fun at Christmas must be old Santa himself."

JOHN BURKE HEARS FAMILY WISHES
Daughters Pam, Cindy, Sally and Lisa talk Christmas with Dad.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Gran Prix, 1970, fully equipped, $2,850. 213-545-6946.

Chevrolet, 1965 Impala SS sport, 396 turbo convt., $725. 213-675-6081.

Corvette, 1964, new 411 posi., eng. just r/blt., A/F radio & remov. top, 4-spd., $1,000. 213-676-3914.

Barracuda, 1970, 2-dr., h/t, 440-6-pak, auto. trans., r/h, new tires, mag whls., $2,300. 213-635-4696.

Cadillac, 1967 CDV, t&t steering, full power, a/c, 63,000 act. miles, $2,750. 213-377-6458.

Toyota, 1969 Corona Deluxe, low mileage, $1,600. 213-374-6445.

Ford, 1961, Wagon, $125. 213-644-0968.

Sunbeam Alpine roadster, remov. h/top, AM/FM radio, wooden dash, wire whls., $550. 213-325-6348.

Pontiac, 1968 Lemans, V-8, auto. trans., p/s, a/c, new tires, $1,250. 213-365-7338.

Chevrolet Pickup, 1956, r/blt. eng., $375. 213-378-3736.

Cadillac, 1968 El Dorado, 42,000 mi., 5 new tires, FM stereo, fully equipped, $3,795. 213-324-8190.

Mustang, 1965, V-8, a/c, p/s, auto. trans., new tires, new batt., $950. 714-993-1917.

Plymouth, 1970 Road Runner, r/h, air grabber, 22,000 mi., $2,150. 714-839-8833.

Cadillac, 1962, 4-dr., full power, air, w/ Frantz oil cleaner, gold paint, $400. 714-523-5389.

Ford, 1962 Galaxie 500, r/h, p/s, p/b, new tires, $300. 213-679-6108.

Metropolitan, 1959, h/top, $125. 213-862-8783.

Rambler, 1959 American, auto. trans., 57,000 mi., $225. 213-833-5515.

Volkswagen, 1965, orig. paint, low mi., custom uphol., radio, new brakes, $695. 714-633-5826.

Fiat, 1969, 124 Spider, mag. whls., det. h/top, 33,000 miles. $2,200. 213-676-7554.

Renault, 1963 R-8, radio, 4-whl. d/brakes, $275. 213-831-9589.

Ford, L.T.D. 1967, 2-dr., air, speed cont., 428 C.I.D., 47,000 miles, $1,500. 213-329-3476.

Chevrolet, 1962 Impala, p/s, p/b, r/h, $250. 213-674-8289.

GMC, 1967 ½-ton pick-up, 63,000 mi., 292 eng., 4 spd., new tires, brakes, shocks, $995. 213-347-4196.

Cadillac, 1955, $200. 213-371-2531.

Volkswagen bus, 9-pass., $1,750. 805-527-5636.

Riviera, 1968, 61,000 mi., min. bid $1,645. Credit Union, ext. 1117.

Fiat, 1961, 1200 conv., $395. 213-633-2990.

Miscellaneous For Sale

Chrome Wheels, 13″, $10 ea. 213-375-6397.

TV Antenna, new VHF-FM, Winegard CW-46, $35. 213-631-3000.

Speakers, 2, 12″ Electro-Voice, walnut fin. encl., $150. 213-370-9124.

Accordion, 120 bass, 7 keyboard switches, 2 bass switches, $150. 213-326-1856.

Jungle Gym, pre-school, wooden dowel climbing cubes, $10. 213-676-3050.

Luggage, new, men's & women's, 3 piece matched sets, leather, hand made in Italy, $250 per set. 213-372-1355.

Transmitter, Johnson pacemaker, SSB-AM-CW, 10-80 meters, $100. 714-968-4992.

Electric Blanket, double bed, dual controls, $7. 213-327-4585.

End Tables, 2 heavy maple, $15 ea. 213-671-1518.

Accordion, Baleorica, 120 bass, $250. 805-483-5644.

Pups, Basset, 6 wks. old, AKC, pedigree, champion sired, shots, $75 up. 213-377-2052.

Radio Transceiver, VHF-FM, console, 50 watts, G.E., w/remote control, $100. 213-322-6655.

Sewing Machine, Singer, w/full set cams, $160. 213-370-1069.

Couch, three piece sectional, w/ottoman, 4 matching end tables, 2 club chairs, dining table w/6 uphl. chairs, tea cart, breakfast table w/4 chairs, $400. 213-323-4329.

Typewriter, electric SMC, $80. 213-293-5888.

Miscellaneous For Sale

Record Player, Show N Tell, 16 picture records, 4-spd. w/11″ diag. viewing screen, $15. 213-327-2279.

Roller Skates, ladies, white, rink, size 8, $6.50. 213-545-1631.

Windows, 8, wood, 24″ x 36″, $2 ea. 213-379-4517.

Tires, 2, snow & mud cleated, w/wheels, size H-70-14, $40. 213-823-8694.

Pool, Dough Boy, 18′ x 4′, filter, vacuum, acc., $200. 213-899-1015.

Skis, Kneissl Red Star, 210 cm, solomon slip-in bindings, $50. 213-372-4141.

Movie Camera, Bolex, model D8L, 8 mm, pistol grip & carrying case, w/light bar, $50. 213-428-3529.

Acreage, 160 acres, 40 acre parcels, near Santa Maria, $395 per acre. 213-370-3821.

Recliner Chair, aqua, naugahyde, $75. 213-329-2981.

Piano, Fischer, console w/bench, $350. 213-378-2790.

Dining Table, birch, 38″ x 65″, 2 fillers & 6 matching chairs, $99. 213-396-5837.

Sewing Machine, 1971 mod., domestic, port., $95. 213-863-3900.

Pony, male, brown with flaxen mane & tail, $75. 714-527-5212.

Boat, 27′ Chris Craft, flying bridge cabin cruiser, fully equipped, s/s radio, RDF, bow rail & swim step, $4,950. 213-329-3900.

Mini Bike, Rupp, Mac 90, 9 h.p., $125. 213-542-2638.

House, 3-bdrm., 1¾ baths, patio, liv. rm., den, $33,000. 213-830-1216.

English Ironstone, comp. service for 8, platter & veg. dish, dishwasher & oven proof, all white, $15. 213-943-8187.

Home, corner, 2-story, 4-bdrm., 2 baths, cpts., dps., bltins, across from new Los Cerritos shopping center, $31,900. 213-860-3022.

Travel Trailer, 1968, 16½′, sleeps 8, stove w/oven, ice box & dbl. sink, $1,250. 213-671-9231.

Travel Trailer, 1967 Norris, 17′, self-contained, pressurized water w/heater, sleeps 6, $1,750. 213-378-7846.

Motorcycle, 1964 Honda Trail, 90 cc, $150. 714-528-8582.

Mini Bike, Cat 400 Deluxe, 4 h.p., springs & shocks susp., $85. 213-431-9620.

Typewriter, Underwood electric, 16″ carriage, $115. 213-375-5760.

Watersoftener, large, Servisoft, $85. 213-379-3300.

Pool Table & equipment, 8′, $175. 213-679-7746.

Tape Recorder, portable, Craig 212, 3″ reel to reel, auto. level control, batt. or AC, $20. 213-392-3147.

Refrigerator, gas, 3½ cu. ft., $35. 213-322-2364.

Crib, adj., w/mattress, hi-chair, booster seat, misc. child's items, $47.50. 213-376-4831.

Table Lamps, 49″, 3-way, brown & beige, $10. 213-376-2725.

Horse, mare, 9 yrs. old, part thorobred, $300. 213-378-0501.

Volkswagen Parts, w/complete kit, $90. 805-482-3893.

Sewing Machine, industrial, Willcox & Gibbs, w/commercial table, $100. 213-374-2915.

Racing Catamaran, 14′ Hobie Cat, trailer, many extras, $950. 213-397-5448.

Shotgun, 12 ga., Remington #1100, 3″ magnum, used once, $120. 213-635-6475.

Motorcycle, 1969 Honda 50 racer, w/long straight pipe, wide handle bars, w/Honda 90 carb., $100. 213-274-0589.

Couch, 6′ 6″, wing back, wood trim, nylon, lt./brn. w/rose, 3 rever. cushions, $80. 213-671-6692.

Motorcycle, 1971 Honda 70, $190. 213-831-3737.

Chairs, 2, quilted, olive green, $20 ea. 213-532-6662.

Trousers, men's sizes, 38″ & 40″ waist, 28″ & 29″ length, $5 pr. 213-675-2772.

Mink Coat, ¾ length, brown, never worn, $395. 213-347-4599.

Acreage, 5 acres, Antelope Valley, view, some paved frontage, $6,000, $400 dn. 213-378-1026.

Trail Bike, Honda 90, less than 500 mi., $225. 213-324-7637.

Bicycle, 10 spd., American Eagle, $55. 714-879-2569.

Piano, upright, recently tuned, re-finished, $185. 213-696-7529.

Flatware, stainless, w/ebony handles, 59 pieces, $15. 213-644-0003.

Refrigerator, 12 cu. ft., $65. 213-542-2353.

CARGO-CARRYING capacity of the new Boeing 747F Freighter is graphically illustrated by a line of freight 320 feet long. Cargo represents 200,000 pounds and 17,000 cubic feet which can be carried across the Atlantic in a single trip. Set for delivery in March 1972, new 747F will go into service a month later with Lufthansa German Airlines.

Miscellaneous For Sale

Electric Organ, Lowrey, two manuals, $400. 213-346-3751.

Sportfisher, 23′ uniflite, h/top, 225 h.p. Chrys. inbd., fr. watercooled, extras, $11,500. 213-271-3484.

Baby Furniture, $35. 213-635-7843.

Boat Trailer, American, for 16 to 18 ft. boat, $100. 213-941-3804.

Motorcycle, 1964 Suzuki, 250 cc, mtr. dismantled, $35. 213-644-9457.

Wheel Chair and walker, Everest-Jenning deluxe, $175. 213-758-9153.

Stove, O'Keefe & Merritt, gas, 4-burner, top grill, white, $50. 213-423-9358.

Sheltie Pup, f., 5½ mos., 13″ high, AKC pedigree, all shots, $50. 213-374-6727.

Cabin Cruiser, 16-ft. Harcraft, fiberglass/wood, 30 h.p. eng., elect. start/pump, anchor, extras, tandem tilt trailer, $595. 213-323-7177.

Jacket, sable mink, $400. 213-396-5428.

Table, sabre saw, Sears, 15 x 17 x 9 in., $3. 213-671-1617.

Bench Saw, 10-in. Craftsman, 1 h.p. mtr., stand, exten. table, guard, ex. blades, DADO set, $150. 213-378-1771.

Stove, Gaffers & Sattler, 4-burners, $49. 213-324-9491.

Luggage, Lady Baltimore, $10. 213-672-3460.

Phonograph, antique Brunswick, needs spring, $30. 213-379-5652.

Stereo, Harmon-Kardon, power amp, 120 watts, pre amp, FM tuner, walnut cabinets, $300. 714-894-6365.

Drumset, professional, 5-pc. with 4 cymbals, $250. 213-375-9485.

Wanted to Buy

Bicycle, 10-spd., boys, will repair. 213-375-8460.

Exercise Bicycle, stationary, Schwinn. 213-377-4623.

Vacuum Cleaner, under $20. 213-545-2577.

Freezer, chest type, 10 to 18 cu. ft. 213-833-2301.

Dinette Set, 4 or 6 chairs. 213-323-0474.

Pocket Watches, old, American, watch repair equip. 805-482-0690.

Fill Dirt. 213-834-3290.

Piano, upright, with or without bench. 213-671-1102.

Free (To Be Given Away)

Rabbit, adult, female. 213-374-8201.

Rentals Offered

Apt, 1-bdrm., unfurn., range, refrig., cpts., dps., a/c, car port, storage locker, Westchester area, adults only, no pets, no lease, by appointment only, $150 mo. 213-756-5157.

Apt, 3-bdrm., 2 baths, 3 blks. to King Harbor, Redondo Beach, 1 mo. free rent, cpts., dps., bltins, close to shopping, schools & bus, $215 mo. 213-379-6549.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

Cabin, new 2-bdrm., Big Bear City, $40 wk/end. 213-320-6486.

Rentals Offered

Duplex, 2-bdrm., unfurn., w/w cpts., enc. patio, fenced yd., near schools, 2 mi. from Northrop, no pets, small child, $155 mo. 213-674-0880.

House, 2-bdrm., h/wood flrs., dps., 5 min. to Northrop, adults, no pets, trash, water, lawn paid, $160 mo. 213-677-8543.

Apt, lge. 2-bdrm., ½ blk to ocean, refrig. & stove, Hermosa Beach, $185 mo. 213-379-4471.

Apt, 1-bdrm., El Segundo, furn., $140 mo., $120 mo. unfurn. 213-757-9321.

Cabin, Rim Forest, near Arrowhead, Running Springs, sleeps six, fireplace, $30 wk/end, $90 wk. 213-370-7105.

Cabin, 2-bdrm., sleeps 8, Big Bear-Moonridge area, f/place, TV, bltin AM-FM radio, lge. kitchen, $90 wk., $40 w/end. 213-541-3000.

Personals

Thank you for the kindness & sympathy expressed at my father's passing. WELKO E. GASICH.

My sincere thanks, NRC, for the lovely flowers. NANCY EASTERLY.

My heartfelt thanks to all my friends at Northrop for the cards, letters & encouragement during my recent illness. BETTY KILTZ.

I wish to thank all our friends for the cards & flowers received during my husband's recent illness. SARANN KRUSE.

I wish to thank all my friends for their gifts & cards during my recent illness. RUTH FERNANDEZ.

My whole hearted thanks for your help & warmth during my bereavement, upon the passing of my father. RHODA GIVENS.

I wish to thank my many friends & fellow workers for the cards & calls received during my recent illness. LA RUE GUYER.

Thank you for our wonderful retirement party & for your friendship over the years, our greatest gift of all. ADELAIDE AND ROBBIE ROBINSON.

Ride Wanted, 8 a.m.-4:42 p.m., crn. Spencer St., Hawthorne Blvd., Torrance, Aircraft ext. 1188.

Ride Wanted, Imperial Hwy., Paramount Blvd., Downey, 8 a.m.-4:42 p.m. Aircraft ext. 1305.

I appreciate, more than words can say, your acts of kindness during the hospitalization and death of my husband, Ira Swaffar. RUTH N. SWAFFAR.

I would like to express my sincere thanks to my friends who helped me over the first and biggest hurdle after my recent surgery. PETER SHRAMKO.

Information sought as to whereabouts of Bulova watch movement lost Nov. 12 following a motorcycle-auto accident at 139th St. and Prairie that took life of Bill McGill. Virginia McGill, ext. 1006, Aircraft.

NORTHROP NEWS
Vol. 29 **No. 19**

Published monthly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

AMONG THE FIRST NORTHROP employees to receive increased benefits under the revised Northrop Patent Award Plan were members of the Corporate Laboratories Laser Systems Laboratory. Receiving their awards from Dr. Gerard Hasserjian, director, right, are Ronald G. Eguchi, Kay C. Crill, Dr. Michael M. Mann, Dr. William B. Lacina, Donald D. Diem and Dr. Mani L. Bhaumik, from left.

Revision of Patent Award Plan Will Help Inventors

Increased patent award payments coupled with the prospect of earning additional cash through special awards make the Northrop Patent Award Plan revised July 31, 1970, more attractive than ever before for Northrop inventors.

An inventor with an invention deemed valuable enough to warrant filing a patent application now earns $100. The old rate was $50. And should that application lead to an issued patent, the inventor receives an additional $300. Before he would have earned $50.

In addition, special awards may be paid to those whose inventions have been licensed to others and produce royalty income for Northrop; been outstanding and have contributed significantly to the success of the company; been sold by Northrop for a substantial consideration. Special awards are a fairly recent addition to the plan.

Aircraft Division activities associated with patents are administered by a special committee chaired by Jim Crawford and comprised of Barny Gaiennie, Mel Shorr, J. P. Taylor and Willard Graham.

Mr. Crawford may be reached at ext. 1982 for information.

Savings Plans to Follow New Fiscal Year in 1972

The change of the Northrop fiscal year to the calendar year, effective Jan. 1, 1972, will bring a change in the dates when employees may apply to enter, or to change their contribution to the Northrop Savings Plan, Don Lutz, Corporate director of Retirement and Savings Plans, has announced.

In the past, applications to start or change contributions were to be made before the first day of August, November, February or May. With the new fiscal year, applications must be made before the first day of January, April, July or October.

JONES—Prospects for Future Look Promising

(Continued from page 2)

tential customers know they can make a commitment with full confidence, Mr. Jones noted.

In areas of business other than aircraft, such as communications and electronics, the company is moving forward at a steady pace, Mr. Jones said.

He mentioned the activities of Page Communications Engineers in Iran, where it is leading an international consortium that is building a nationwide telephone, telegraph, television and data communications network; and the activities of the Hallicrafters Company in producing electronics countermeasures equipment.

In concluding his remarks, Mr. Jones noted that "the life of a corporation like Northrop does not consist only of sales and earnings, of manufacturing and selling.

"There is a human side to it that is very important and I want to say that if in these months we are going through fairly difficult times, our people have responded to them wonderfully.

"The challenge has certainly brought out the best in them. More than that, we have stimulated a companywide program of individual participation in community activities so that we are in a position to feel that, on the whole, Northrop people are shouldering their share of civic responsibilities in the communities in which they live and the nation.

"I think this is very important in these times and we are pleased at the extent of activity our people represent."

FULLER—A Top Construction Firm

(Continued from page 2)

estate development division. Prior to that he was with Texas Instruments in charge of design, construction and management of new facilities.

"Acquiring Fuller expands Northrop's commercial business," Mr. Jones said. "The acquisition also enables us to extend our work in the areas of environmental control and in the area of urban development through construction of hospitals, health care centers and planned communities In addition, Fuller will make available to us certain expertise in the construction field for the phases of Northrop's operations that involve construction including a construction management team," Mr. Jones pointed out.

"The Fuller Company, founded in 1882, has an outstanding and respected record in the construction field. Although it has experienced some severe losses on certain contracts in the past few years, we are convinced the basic strength of the company remains," Mr. Jones added.

Currently, the company holds construction and construction management contracts on a diverse list of projects.

Since its founding in the wake of the Civil War reconstruction period, Fuller has been involved with a long list of historic buildings including the Lincoln Memorial, the U.S. Supreme Court and the National Cathedral in Washington, work on which started in 1904 and is now in its 68th year, as well as New York's Pennsylvania Station, Flatiron Building and the Plaza Hotel.

More recent accomplishments have included the Seagrams, Union Carbide, Time/Life, Lever House, and United Nations buildings in New York, plus the New York Coliseum and the General Motors building that was erected on the site of New York's old Savoy-Plaza Hotel, originally built by Fuller in 1907.

Although primarily an eastern corporation, in the west, Fuller has constructed the Federal Building, Travelers Insurance building, Marineland and the Century Plaza Hotel in Los Angeles; the Bank of America headquarters, San Francisco; and the Hotel Plaza Internacional, Acapulco, Mexico.

Fuller headquarters are at 596 Madison Ave., New York City.

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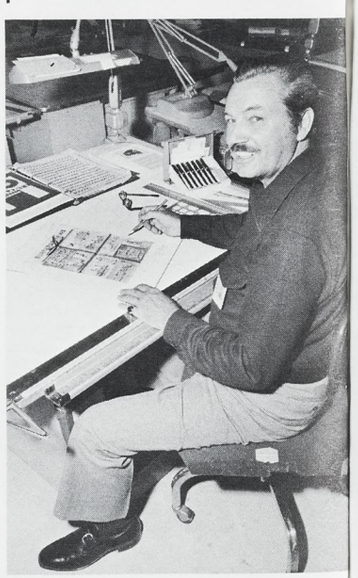


ERWIN "STEINIE" STEINMEYER, an illustrator at the Electronics Division, created the cover for this year's special Christmas edition. The old toys shown on the cover are from the private collection of Mr. Steinmeyer and a friend of his, both of whom are avid antique toy collectors. Mr. Steinmeyer joined Northrop in 1953. Prior to that he worked as a commercial artist in the Hollywood Division of Foote, Cone and Belding, a well-known advertising agency.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 1 | January 1972

Mike Buckbee Aids Victim

Mike Buckbee, son of Buck Buckbee of the division's Ocean Engineering office, San Diego, was commended by the Fullerton Police for helping save the life of a wreck victim recently.

A car, failing to make a turn on a wet street, crashed and burst into flames at 3:30 a.m. near the Buckbee home in Fullerton. Mike and two high school boys, who also rushed to assist, pulled the trapped driver from the car, saving his life. A passenger was killed in the crash.

Appreciation

In a letter to Mike, Wayne H. Bornhoft, Anaheim chief of police, said, "The concern that some citizens display for their fellow man and their willingness to act without thought of personal jeopardy are most gratifying to our police officers.

"You are to be especially commended for the decisive actions you took when you happened upon this tragic scene. As a result of your courageous deed and the aid of the other citizens involved, the driver was able to survive the accident.

"As it has become so common to hear of public apathy, it is very reassuring for us to learn that young men of your caliber and instinct, willingly lend their assistance to those in need."

LEO GRIZEL, center, receives his 25-year pin from Frank W. Lynch. With them is Bob Corson, left. In his quarter century with Northrop, Mr. Grizel has worked at Hawthorne, Palos Verdes and Anaheim, and is a senior engineer in Electro-Optical. He commutes to work from his home in Burbank and estimates that he has worn out five cars and traveled 370,000 miles just coming to work and going home in these 25 years.

Division Hosts Achievers

Electro-Mechanical Division recently hosted a Production Experience Day for 10 student members of TOPCO, the Junior Achievement company sponsored by the division.

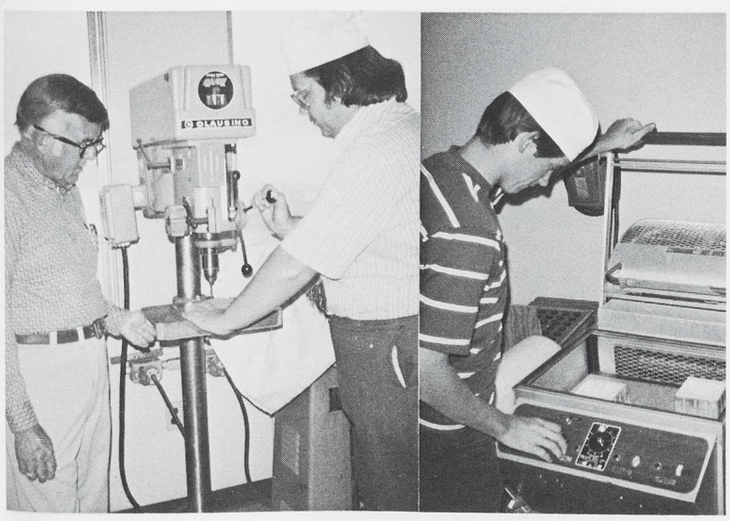
Students taking part in the activity were Mary Beardman, Steven Jolitz, Bernie Parsons, Gary Roberts and Lee Rose, Anaheim High School; Anita Seaward, El Dorado High; Sue Howard, Orange; Charles Dawson, Richard Dawson and Jackie McLain, Magnolia.

By special arrangement, production type equipment of the Northrop Technical Department Laboratory was made available for student operation under direction of Dellar Mott, laboratory manager.

The students were first briefed on safety requirements, and then instructed in the proper use of specific items of equipment needed to fabricate their products.

After advisor checkout and approval, the students were then permitted to operate the equipment themselves, producing typical TOPCO components.

The student production teams, under supervision of advisors Betty Duba, Technical Dept., and Harry George, Operations Dept., used a temperature-cycle controlled vacuum table which in production practice would be employed to form clear plastic covers for the GOT-CHA games, one of TOPCO's current products.



DELLAR MOTT, Northrop Laboratory manager, shows Charles Dawson how to drill boards for GOT-CHA games, left, and at right, Gary Roberts operates vacuum forming table to make covers for the game which the TOPCO Junior Achievement company is making.

LYNCH TO SPEAK AT CLUB MEETING

Frank W. Lynch, vice president and general manager, will be the featured speaker at the Jan. 27 meeting of the division Management Club. The meeting will be held in the Sky Room of the Grand Hotel in Anaheim. In addition to Mr. Lynch's address, the club will install its 1972 slate of officers, according to John Burke.

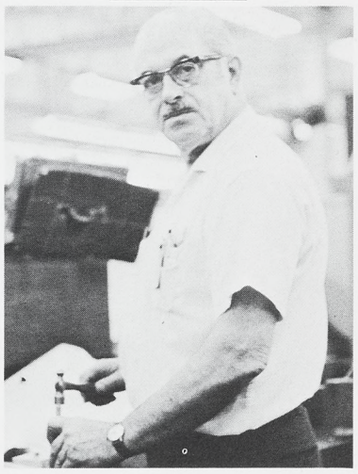
Hyperbaric Chambers Are Installed

Two giant hyperbaric chambers, which form the core of the U.S. Navy's Ocean Simulation Facility, are being installed at Panama City, Florida.

The two chambers will be mated to provide a wet chamber (water filled) with a 15-foot diameter and 47 feet long, weighing 135 tons and a dry chamber eight feet in diameter, 62 feet long, weighing 150 tons. Together they will form a complex where men and equipment can be tested in a simulated deep ocean environment to 2,250 feet.

The chamber complex is being set on a slab of 472 cubic yards of concrete.

The Electro-Mechanical Division has a major contract with the Naval Facilities Command to develop and manufacture instrumentation and support systems hardware for the simulation facility. The division has already delivered a series of control consoles for the facility. As soon as the pressure chambers have been installed, Northrop field representatives will begin installation of life support systems in the chambers. This includes the piping, instrumentation, and testing.



LEONARD E. DINES closes out his last day on the job at his work bench in the machine shop. Mr. Dines spent 19 years and nine months with Tool Manufacturing before retiring January 1. He intends to take a trip back to Ohio and then will "putter around home."

Northrop Seeks Pay Board Approval of Wage Increase

Northrop Corporation applied to the Federal Pay Board on Friday, Jan. 7, in Washington, D.C. for approval to increase the wages of its hourly employees at three Southern California divisions to levels that will be equal to those that will eventually be approved for the aerospace industry.

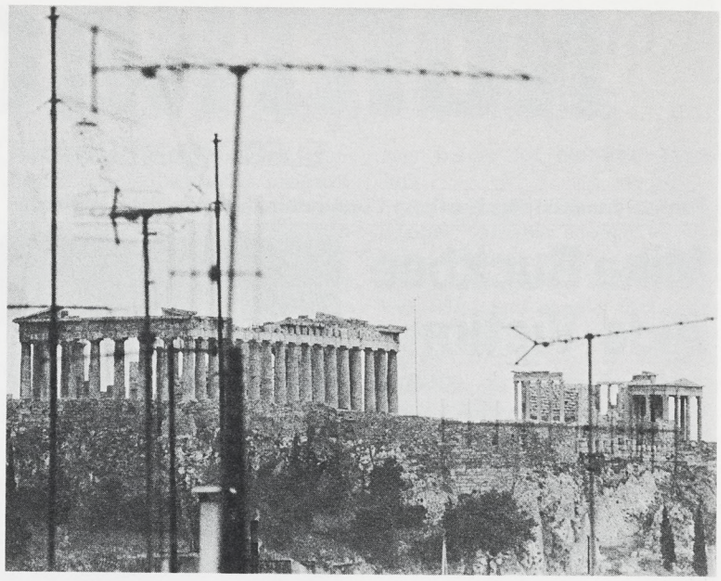
Approximately 2,500 employees in the Aircraft, Electronics, and Electro-Mechanical Divisions and Corporate office, were included in the application for increases.

Not affected by the application are Northrop employees at Newbury Park who are represented by a union.

The Federal Pay Board did not act on the company's application, deferring action until guidelines for all West Coast aerospace companies are established.

Frank Smith, Corporate director of Industrial Relations, stated that the delay by the Pay Board would mean that hourly general increases announced on Dec. 16, 1971, would not appear on paychecks issued Jan. 14, but he was optimistic that a decision would be forthcoming in the near future which would allow a general increase retroactive to Jan. 1, 1972.

Mr. Smith stressed that the Pay Board's action would not affect normal January reviews for salaried personnel as these reviews are not subject to prior Pay Board approval.



TELEVISION ANTENNAS FRONT GREEK RUINS
Northrop is helping bring TV to residents of all of Greece.

Subcommittee Works for Safety

Creation of a new Safety Subcommittee of Northrop's Interdivisional Industrial Relations Committee has been announced by Frank Smith, Corporate director of Industrial Relations.

Mr. Smith indicated the new subcommittee provides Northrop with a broad base for reviewing and eliminating the potential for work related injuries and illnesses. It will strive to help preserve Northrop's outstanding reputation for providing safe work places and operating procedures.

Al Van Der Most, Electro-Mechanical Division, is the subcommittee chairman. Members include Paul Crews, Aircraft; John Felder, Corporate Laboratories; Harry Clark and Joe Rahiya, Electronics; Frank Lund, Ventura; and Dale Albee, Northrop Architectural Systems. Dr. Richard Krebsbach, Aircraft, Tom Duffield, Corporate Insurance, and Bill Waysman, assistant Corporate counsel, are ex-officio members.

NORTHROP YEARS

Northrop Personnel Activities outlets continue to offer a pictorial history of Northrop contributions to the advancement of aeronautics in the form of a 42-page booklet.

Called "Flying Through the Years," the booklet includes 19 full color photographs of historic Northrop aircraft, plus descriptive texts on each aircraft. The price is just $1 per book.

Northrop Subsidiary Installing Modern Television Network for All of Greece

(Editor's Note: Les Daly, Corporate director of Public Affairs in Europe, the Middle East and Africa, wrote the following article. We felt employees would find in it an interesting report on how Northrop is helping bring something new to an ancient corner of the world.)

If you've ever thought of sailing off to a Greek island "to get away from it all," forget it; "all"—spelled TV—is coming to the Greek islands, too.

By the end of this year, one of the most modern television networks in Europe will be in operation here, reaching into nearly every Greek home from the shadow of the Acropolis to the hundreds of sunny islands scattered all across the Aegean Sea.

Although the very word owes its origin to the ancient Greek 'tele,' meaning distant, the individualistic Greeks are almost the last Europeans to succumb to the worldwide invasion of television. Now, only isolated Albania remains without television.

The elaborate network, which includes FM broadcasting and a global shortwave system, is being built for the National Radio and Television Corporation by Page-Europa, an Italian subsidiary of Northrop Corporation, under a $12.5 million, two-year contract. Company officials say the ambitious project is one of the few such programs in the world in which an entire system is being installed at once, rather than built up gradually over a number of years.

Center of the network is, of course, Athens, the political, economic and cultural capital of the country where one in every five Greeks lives and works. At the same time, some 60 per cent of the country's 9 million citizens live in villages of less than 5,000. In order to reach them, transmitters have been built all across the country's mountainous face and in such exotic island sites as Crete, Corfu, Rhodes and Lesbos. Five of the transmitters stand like a picket fence along the country's northern frontiers with Albania, Yugoslavia and Bulgaria.

All But a Few

With the present system, television can reach all but that small percentage of the population which is tucked away behind certain mountain ranges that form a "television shadow." It is expected that ultimately they will be covered as well.

In an interesting example of corporate cooperation, the Page-built transmitter outside Chania, Crete, will bring television entertainment to the personnel at the NATO Missile Firing Installation there — including the seven-man Northrop Ventura team providing the target services program for the various NATO missile crews that use the facility. The Page TV transmitter near Volos, in eastern Greece, will probably help to brighten the evenings for the Northrop Aircraft Division team serving as technical representatives with the Royal Hellenic Air Force squadrons flying Northrop F-5 tactical fighters. Page takes care of its own too; the PCE team completing the giant Voice of America transmitter at Kavalla will tune in to the Page-Europa television transmitter of Pangeon, just a few miles away.

The TV network is currently transmitting black and white television about three hours during the daytime and six hours during the evening. The system also has provisions for additional channels and for color television—either the German PAL or the French SECAM technique to make it compatible with its American counterpart. Like the United States, but unlike most European countries, Greece stepped directly into commercial television, with a wide range of advertisements already sprinkled liberally throughout the programming day.

The Northrop-Page designed system includes two mobile TV studios and a modern, sophisticated permanent studio now under construction about 10 miles from here. The new facilities will enable the national network to tie into the continent-wide Eurovision system and, eventually, into satellite television.

The giant short-wave complex 35 miles from here provides two 100 kilowatt transmitters for worldwide coverage on all frequencies and is one of the most powerful in the Middle East.

Northrop International Staff Fills Key Roles

Over the past decade, as Northrop business interests have multiplied many-fold in the major market places of the world, the services and talents of a small group of employees have assumed ever-increasing importance.

They are the men and women of Northrop International.

Northrop Vice President C. Robert Gates and a small staff at Century City guide the efforts of this unique group.

However, many of the day-to-day tasks fall to those on duty in 10 Northrop International liaison field offices. The locations of these offices—Paris, Oslo, Rome, Tehran, Beirut, Madrid, Athens, Bangkok, Taiwan and a special office for Latin America located at Century City—mirror Northrop's current worldwide business involvement.

Relying upon rare combinations of skill, talents, background and training, these individuals serve as representatives of all Northrop operating elements. They must know precisely what is taking place in every Northrop project, program or proposed effort in the vast geographical territory they cover.

More they must remain acutely tuned to conditions in the countries they serve, ranging from the present political "climate" to the temperaments of the leaders, the requirements of the nations they serve and how they fit into international conditions. They brief and de-brief all Northrop visitors to these countries to assist them in carrying out individual and group missions, and provide continuity to Northrop's many international marketing objectives.

Typical of the rare breed of men who fill these assignments is Geoffrey Parsons, a Northrop International vice president and

Geoffrey Parsons

manager of the Paris office.

The Paris office is the oldest of Northrop's overseas offices, dating back to 1957, and Mr. Parsons is the dean of Northrop's International field office managers, having served in Paris since that time.

Mr. Parsons likes to recall the exchange between himself and Whitley Collins, then Northrop's president, that led to his joining Northrop and opening the Paris office.

"Mr. Collins tendered the job offer and I protested that I knew nothing about the aircraft business," he says. "Without batting an eye, Mr. Collins countered with 'then it's a fair exchange, since in California we know almost nothing about Europe.' "

Geoff Parsons speaks fluent French and is able to "get by" in other European languages. When he was a lad of 12 years, his parents spent 18 months in France while his father researched a book subsequently published under the title of "The Stream of History."

Following schooling at Harvard, Mr. Parsons joined the Boston Globe as a reporter in 1931. Six years later he opened the Middle Western Bureau of the New York Herald Tribune in Chicago, covering a "beat" that stretched from Cleveland and Detroit to the West Coast.

On The Scene

Before Pearl Harbor, in September 1941, he went to London as a war correspondent. He covered World War II from Britain, with the exception of time out to report from Algiers in 1943.

Within a few days of the liberation of Paris in 1944, Geoff Parsons was dispatched there to prepare for the resumption of the publication of the Paris Edition of the Herald Tribune which he edited for the next seven years.

In October 1950, Mr. Parsons was recruited to join the newly born North Atlantic Treaty Organization where he served seven years as chief of Press and Public Relations and director of Information.

He feels that this experience provided him not only with a basic understanding of the defense and political problems of the Atlantic Alliance, but also a wide acquaintance with the key personnel in foreign and defense ministries in Europe. "Many of the relatively junior people I met in the NATO delegations then have matured and moved upwards into key positions of responsibility today," he says.

Geoff Parsons and his wife, Drue, live in an apartment in the heart of Paris.

"Our building was constructed as a part of a real estate promotion under Louis XIII in the 1630's," he says. "The elevator is slightly more recent."

The Parsons were married in Paris in 1945.

Drue Parsons grew up in Santa Monica, followed a film career in Hollywood and acted on the stage in New York and London. Her first husband, a Frenchman, was killed in Syria while serving with the Free French forces.

Mrs. Parsons lived in Paris during the German occupation period. As an active member of the French Resistance she harbored 30 Allied flyers and helped them to escape, receiving for her deeds decorations from the French, British and United States governments.

The first Northrop European office was located in the Parson's apartment, later moving to 12 Avenue Hoche and still later to its present location at 12 Rue Hamelin.

(Editor's note: Northrop News will present profiles of other key Northrop International personnel in subsequent issues.)

Credit Union Sets 6% Dividend Rate

Northrop Credit Union has paid its shareholders another semi-annual dividend of six per cent.

The latest dividend was paid on deposits of record Nov. 30, 1971, and was posted to accounts Jan. 1, according to Credit Union President Glenn Thornton who announced the dividend for the board of directors.

Mr. Thornton noted that the dividend, when compounded semi-annually as the Credit Union does, actually amounts to an annual rate of 6.09 per cent.

Northrop Credit Union offers Northrop employees a systematic method of saving via payroll deductions. It also provides members with low cost loans for the purchase of new or used automobiles, trailers and campers, as well as homeowner and personal loans.

Robert R. Miller Mourned

All Northrop personnel were saddened last month with the death of Robert R. Miller, 68, who passed away at Santa Monica Hospital after a brief illness.

Mr. Miller retired in 1968 as a Northrop senior vice president, but continued to serve the company as a consultant. He was also a member of the Northrop Corporation board of directors as well as a member of the board of three Northrop subsidiaries, Page Communications Engineers, Northrop Architectural Systems and Northrop Carolina, Inc. In addition, he was a director of the Northrop affiliated company Construcciones Aeronauticas, S.A. of Spain.

A graduate of the University of California at Berkeley, Mr. Miller was an executive in investment and manufacturing fields before joining Northrop in 1951. He served as assistant to the vice president for Customer Relations, vice president for Administration, and vice president and general manager before becoming a senior vice president.

Mr. Miller is survived by his wife, Mary; a brother, Howard Miller of Santa Monica; and a sister, Mrs. Marion Vallat of Calgary, Canada.

Godfrey Receives Top Jaycee Honors

A Ventura Division contracts administrator has been awarded one of the highest honors of the Junior Chamber International.

Forrest W. Godfrey, active in numerous civic and community activities, has been named a JCI Senator.

A past-president of the sponsoring Camarillo Jaycees, Mr. Godfrey joined the club in 1963 when he also joined Northrop. He held several Jaycee posts, including district governor and state director.

Mr. Godfrey

Mr. Godfrey is a trustee of the Pleasant Valley School District, president of the board of trustees of his church, and has served on the Ventura County Selective Service (Draft) Board since his appointment by President Nixon in 1969, to name a few.

JERRY TORGERSON

Young Gridder Picked for All-CIF Team

Jerry Torgerson, the youngest son of Ventura Division Senior Engineer Russ Torgerson, had an outstanding high school gridiron career capped by his selection to the All-CIF 'AAA' division first team.

Young Torgerson quarterbacked his Newbury Park High Panthers to a Marmonte League championship for the second year in a row. Last year he was third team All-CIF (Southern California).

His passing and running performance resulted in 2,288 yards gained in nine games and also earned him Marmonte League Player of the Year honors for the second consecutive season.

Although just 5'10" and weighing 155 pounds, Jerry ran the I-formation quarterback option play to perfection. The team he co-captained averaged more than 30 points per game.

JERRY TORGERSON CARRIES THE MAIL
Northrop son made All-CIF team. (Thousand Oaks News-Chronicle photo.)

Jerry's father, a 10-year Northrop employee, credits "competition with his older brother over the years," as a major contributor to the young man's success.

"His brother, David, is five years older than Jerry and Jerry always tried to keep up with him athletically," he said.

Aspiring to such high standards has resulted in a top baseball performance, too. Jerry has been an all-league shortstop for two years and no doubt will repeat this spring.

Brother David's baseball prowess led to a contract with the San Francisco Giants organization, although he is now attending Milligan College in Tennessee.

Colleges Want Him

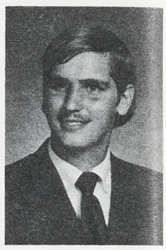
Jerry's college plans are not definite. He has been offered an Air Force Academy nomination and has had feelers from Oklahoma, Stanford, New Mexico State and Yale (his academic grade average is 3.75).

Does he aspire to professional sports? "I don't think he'd pass it up," his father commented, "but ideally he'd like to be an airline pilot and live on a ranch."

At 17, though, his plans remain flexible while his athletic and scholastic foundations are very solid.

Bruce Parr Is Selected for Who's Who List

Bruce Parr, son of Stan Parr, of the Electronics Division, has been selected to have his biography published in Merit's "Who's Who Among American High School Students."



Bruce Parr

The publication is the largest and leading volume in the field of student achievement books. It is widely acclaimed and recognized by educators, government, industrial and religious leaders.

Bruce, 16, is a senior at John F. Kennedy High School in La Palma. He is an honor student (3.9 grade average) and a member of the California Scholarship Federation.

His other activities include editing the school's yearbook, serving as a teacher's aid, playing in band concerts and photography.

Bruce plans to continue his studies this fall at Cypress Junior College. His present career objective is to become a lawyer.

MEETING SET

Northrop Credit Union will hold its annual shareholders' meeting at 5 p.m. Feb. 1 in the Aircraft Division's Plant One cafeteria. Shareholders of record on the books Feb. 1 will be entitled to vote at the meeting.

Researcher Does Strange Things in Tests

A Northrop researcher under a NASA contract at Langley Research Center is putting round pegs in square holes, reading backwards, and having a blinking time with lights.

This is part of a study of noise pollution — its sources and its effect upon human beings. The researcher is daily subjected to sounds of low flying aircraft while performing exacting mental and physical tests.

In one part of the tests he sits in front of a panel of blinking lights which are computer controlled. He must match light sequences by the use of two levers and pedals. Periodically his work is interrupted by the loud noise of low flying aircraft. The objective of the test is to measure the reaction and efficiency of the operator when noise interrupts.

Other problems that must be solved in an environment of noise include a multi-dimensional performance test based on the old square pegs in round holes game. It is designed to study man's ability to do problems in a limited time under sound stress.

In another test the researcher must put a phonograph needle inside small circles on a spinning turntable while loud noises fill the room. Still another test involves a mirror device where writing must be read and defined backward.

The program has been under way for the past two years under the direction of Dr. Randall M. Chambers of NASA's Human Factors Branch. The Northrop man on the program is Bill Eaton, Northrop Services Inc.'s program manager at Langley. Northrop Services Inc., an operating unit of the Electro-Mechanical Division, is under direction of William J. Oakes.

According to Dr. Chambers, valuable data has been collected relative to human reaction to noise which will aid in long range noise abatement programs.

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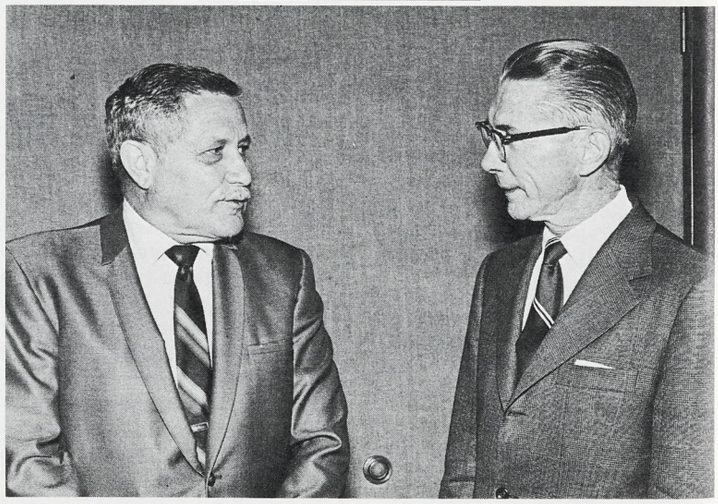

TWO KEY NORTHROP men who have assisted many retiring employees in planning their futures have recently joined the ranks of retirees. At left is Harry Belcher of the Electro-Mechanical Division who completed 30 years with Northrop and at right is Howard Sizemore, Corporate administrator of Retirement and Savings Plans, a veteran of 20 years.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Opel, 1970 GT, fully equipped, 102 h.p., $2,400. 213-644-3111.

Volkswagen, 1970 Camper Bus, new tires, pop top, $2,995. 213-370-9813.

Volkswagen, 1969, r/h, 4-spd. trans., $1,550. 213-326-7084.

Jaguar, 1959, XK 150, new Koni shocks, paint & convt. top, $1,050. 714-622-2757, 213-398-7155.

Comet, 1960, new tires, batt., $225. 213-371-8867.

Datsun, 1971, 2-dr. sedan, stick shift, r/h, 16,000 mi., $1,695. 213-547-3837.

Mustang 2+2, 1965, 4-spd., V-8 fastback, r/h, $595. 213-679-3889.

Falcon, 1968 2-dr., auto., r/h, p/s, $900. 213-671-4550.

Pickup, 1963 Chev., ½-ton, V-8, auto. trans., r/h, a/c, 32" camper shell w/boot, $1,225. 213-671-9231.

Ford, 1967, Gax-500, V-8, convt., r/h, a/c, $950. 714-839-8833.

Fiat 1200, custom body, 1961 convt., 4-spd. stick, $375. 213-633-2990.

Honda 600, 1971 sedan, radio, shop manual, 42 mpg, $1,095. 213-325-3057.

Rambler, 1962 Classic 6 sedan, needs work, $50. 213-541-1277.

T-Bird, 1963, full power, a/c, $425. 213-374-4703.

Metropolitan, 1959, h/top, $125. 213-862-8783.

Pontiac, 1968 Catalina, 4-dr., 58,000 mi., new tires & batt., $1,050. 213-377-2968.

Renault R-8, 1963, 4-whl. d/brakes, r/h, $250. 213-831-9589.

Plymouth, 1965 Valiant, 4-dr. sedan, r/h, 225 cu. in. 6 eng., auto. trans., $350. 213-375-4747.

Cadillac, 1962 h/top, 4-dr., full power, $375. 714-523-5389.

Miscellaneous For Sale

Tapedeck, AKAI M-8 & recorder w/spkrs., mikes, headphones, $150. 213-866-7457.

Theater Organ, 2-manual, 32 note pedal, 53 stops, amplifiers & spkrs., $2,000. 714-539-1531.

Manual, Motor's auto repair, 26th edition, 1953-1963, $5. 213-375-1685.

Typewriter, IBM elec., $165. 213-673-5614.

Acreage, 5 acres, Antelope Valley, some paved frontage, $400 dn., $6,000. 213-378-1026.

Trolley Hoist, 1½ ton cap., runs on straight or curved 5" I-beam, $95. 213-457-9600.

Cabin, lge., 5 acres in Apple Valley, all utils., $11,500. 213-327-4356.

Typewriter, Royal standard, $225. 213-398-9100.

Guitar, Spanish, made in Mexico, instruction books, $25. 213-676-8817.

Tent Trailer, 1966 Travel Mate h/top, sleeps 7, range, ice box, water sys., extras, $550. 213-798-3002.

Exercise Bench, 6 positions, $15. 213-483-0100.

Pups, Chihuahua, pedigree & AKC papers, $65-$150. 213-866-1276.

Bicycle, girl's 20", $15. 213-672-3202.

House, 2-bdrm., extra wide lot, 60x141, room to build in rear, No. Inglewood, $19,000. 213-671-6692.

Camper, 8½' full cabover, 3-burner stove, ice box, sleeps 4, incl. jacks & awning, $695. 213-325-2292.

Dinette Set, no-mar wood grain oval table w/6 green chairs, $30. 213-374-7625.

Motorcycle, 1971 Honda CB 350, take over $35 mo. pymts. or $150. 714-879-2569.

Mobile Radio, G.E., 25 w., VHF-FM, $35. 213-322-6655.

Table Saw, 10" Craftsman, w/stand & motor, $100. 213-674-0880.

Bicycle, Puegeot folding-type deluxe, many access., $60. 213-375-5760.

Movie Camera, Bolex, model D8L, 8 mm, pistol grip & carrying case, light bar, $50. 213-428-3529.

Guitar, fender stratocaster Sunburst elec., hard-bodied case, $200. 213-541-2675.

Playpen, Peterson comb. w/pad, $15. 213-676-6738.

Miscellaneous For Sale

Wheel Chair, folding, $65. 213-833-5515.

Bar **Stools,** 4 wrought iron, $20. 714-838-7161.

Camera, Rival, 35 mm, w/p&b flash gun, $20. 714-523-5315.

Motorcycle, 1970 Honda SL 90, $275. 213-377-5897.

Guitar, elec., St. George, bltin reverb., $30. 213-378-4567.

Fireplace, standing-type, 65" high, complete w/all hardware, screen, grate, $200. 213-378-9660.

Opera Glasses, antique French, gold & pearl, $35. 213-379-5652.

Desks, 2 children's & chair, $7.50. 213-376-4831.

Archery Set, 50 lb. recurve bow, quiver, arrows, glove, $15. 213-327-4585.

Ski Pants, 3 pr. women's size 10, $8-$15. 213-676-3050.

Shopsmith, Mark V, full set of attachs. incl. jig saw, $125. 213-573-1760.

Motorcycle, 1969 Honda SL 90, 2,000 mi., $275. 213-596-2039.

Speakers, 2, 15", J. B. Lansing LE 15A, $65 ea. 213-673-5762.

Snow Chains, 3 sets, $7.50 ea. 213-676-6449.

Patio Set, 12-pc. Brown & Jordan, won on TV show, $1,000. 213-865-8400.

Acreage, 40 acres, 175 miles north of L.A., $395 acre. 213-370-3821.

Mini Bike, Taco, new motor, $80. 213-377-1074.

Ski Boat, custom, Higbee hull, 90 Merc. o/b, safety equip., $1,500. 805-482-0264.

Chair, vinyl, avocado green, recliner, $35. 213-324-8853.

Ski Boat, 17' Stevens, natural wood deck, Pontiac eng., vee dr. w/reverse, galv. trailer, $1,750. 714-528-3630.

Fishing Equipment, ocean reels, rods, assorted tackle, $50. 213-755-6118.

Trans-Cooler, Hayden, $20. 213-375-6114.

Acreage, 2½-acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, $6,500. 714-673-7752.

Enlarger, Omega D-2, 2 lens, 2 condensers for 35 mm & 4 x 5, $165. 213-373-3098.

Cabin Cruiser, 1971 24' Reinell, fiberglass construction, 215 h.p. OMC stern drive, galley, full camper cover w/side curtains, E-Z loader tandem trailer w/Surge bks., $7,900. 805-498-8877.

Pup, poodle, AKC, apricot, female, papers, small miniature, $50. 213-866-4104, 213-429-4150.

Stove, Gaffers & Sattler, dble. oven, coppertone, gas, 2 yrs. old, $160. 213-644-6325.

End Tables, 2, Danish walnut, never-mar tops, $20 ea. 213-541-3000.

Typewriter, portable manual Remington, $40. 213-396-5837.

Motorcycle, 1968 Honda 350, $450. 213-645-7114.

Dressing Table, antique, w/triple mirror, 2 drwrs., mahogany finish, matching small cane seated chair, $137.50, many other items. 213-474-5726.

Home, corner, 2-story, 4-bdrm., 2 baths, f/place, cpts., dps., across from new Los Cerritos shopping center, $31,900. 213-860-3022.

Coat, mink, ¾ length, autumn haze, never worn, $395. 213-347-4599.

Table, 30", 16" high, Scandinavian oiled walnut, $35. 213-831-6882.

Bench Saw, 10" Craftsman, 1 h.p. mot., stand, exten. table, guard, ex. blades, DADO set, $130. 213-378-1771.

Mountain Lot, Running Springs, Calif., on maintained county road, ¼ mile from Rte. 18, $5,500. 213-330-7330.

Wanted to Buy

Trailer, small, for 12' boat. 213-927-5967.

Aquarium, 30 to 45 gal., hood, stand optional. 213-423-5398.

Cadillac, 1965 or '67 Brougham or sedan De Ville, fully equipped. 213-373-1098.

Camping Trailer, self-contained, less than $2,000. 213-830-1216.

Sunbeam Alpine, for parts, 1963-1969, also need h/top. 805-482-3893.

Bicycles, man's & woman's, used, preferably 3-spd. 213-545-2577.

Anvil, as used for blacksmithing or metalsmithing, 50 to 100 lbs. 213-375-3977.

Lots, improved, w/alleys, or 3 to 5 acres suitable for garden apts., must be subject to zoning changes, if not already zoned for apts. 714-828-2857.

Free (To Be Given Away)

Pups, Doberman/German shepherd. 213-323-6786.

Navy Yacht Club Bestows Honors on Herbert Turner

The Navy Yacht Club of Long Beach has presented its "Yachtsman of the Year" award to Herbert A. Turner, Jr., Electro-Mechanical Division Management Systems. The award is made annually to the member who has contributed most to the club.

Mr. Turner's contributions included helping frame a new constitution, development of fiscal policies, and his leadership in his office of Rear-Commodore. In the general election following the presentation, he was elected Vice-Commodore for the coming year.

The Navy Yacht Club, an organization of active and retired Navy, Air Force and Coast Guard officers and enlisted personnel is devoted to the promotion of sailing and sailboat racing.

With the new concept of smaller ships in the Navy, new emphasis is being directed to the development of seamanship skills which have generally disappeared in today's fleet of superships. Sailboating and racing demands the maximum of skills in dealing with wind, current, and seamanship. Toward this objective, Herb is a member of the Naval Station Advisory Council for Seamanship and Sailing, as well as being a delegate to the Southern California Yachting Assn. and the Newport Ocean Racing Assn.

This involvement with seamanship and the Navy may seem a bit odd for a retired Army officer, but Herb has had an obsession about sailboats since he was nine. He built his first boat at eleven, raced his own Snipe class boat at 16, and became a Sea Scout Quartermaster at 18.

NORTHROP NEWS

Vol. 30 **No. 1**

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3901 West Broadway, Hawthorne, California 90250
Telephone: (213) 675-4611, ext. 4273

Free (To Be Given Away)

Dog, champagne, poodle w/a little terrier, female, all shots, approx. 1 yr. old. 213-378-7846.

Pups, small, short-haired, male & female, 9 wks. old. 213-329-9625.

Rentals Offered

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

Home, Westchester, 1-bdrm., cpts., dps., stove, refrig., air cond., soundproof, carport w/storage locker, water pd., no pets, baby ok, $150 mo. 213-756-5157.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Garage, preferably for storage, vic. 117th & Crenshaw Blvd., $10 mo. 213-756-3669.

Condominium, 1-bdrm., in Mammoth, Calif., full kitchen facilities, sleeps 5, $40 w/end, $60/midwk. 213-785-1405.

House, 3-bdrm., 1½ baths, cpts., dps., bltin stove, Lawndale, children OK, no pets, $225 mo. 213-676-0044.

Apt, Redondo Beach, 1-bdrm., cpts., bltins, central vacuum, gar. w/storage cabinets, 1 month's free rent, $140. 213-379-6549.

Home, living, family, & music rooms, 3-bdrm., 1¾ baths, patio, 5 blocks from Aircraft Div., $250 mo. 213-887-7766.

Pickup, w/11' camper, rigged for snow & cold, sleeps 6, $100 wk. & 5¢ mi. 714-544-0730.

Apt, 1-bdrm., unfurn., sub. parking, pool, bltins, cpts., dps., 10 min. to Northrop, $150. 213-679-1825, 213-670-6084.

Home, Torrance, 3-bdrm., 2 baths, family rm., 2 f/places, bltin stove, dishwasher, cpts., dps., fenced yd., $370 mo. 213-373-1933.

Found

Earring, Indian silver, parrot-shaped w/green jade, at Ventura main gate, call Ventura ext. 329.

Personals

It's been a privilege to have known & worked with so many nice people at Northrop. Thanks for the retirement parties & gifts. JOHN STRASSER.

I wish to express my gratitude to all of you with whom I have worked & to thank all of my many friends at Northrop for helping to make my retirement a happy one. My best wishes to all of you. HOWARD SIZEMORE.

On the occasion of my retirement from the Electro-Mechanical Div., I'd like to say Aloha to all my dear friends with whom I've worked during my 11½ years with Northrop. THELMA GRADY.

Thank you for the kindness & sympathy expressed on the death of my husband, Bill McGill. Due to your generous contributions an educational fund of over $500 has been established for our son. VIRGINIA McGILL.

We wish to thank N.A.R., N.R.C. & fellow employees for the beautiful flowers & kind expressions of sympathy in memory of our father, Chris H. Graber. ALLEN C. GRABER & GLADYS TELFORD.

I would like to thank everyone for the understanding & sympathy expressed at the passing of my mother. ED KONG.

Ironing, by piece or hour. 213-371-5075.

Ride Wanted, 8 a.m.-4:42 p.m., near Hawthorne & Torrance Blvds. to NCL bldg., Aircraft ext. 1281, 213-542-2390.

Ride Wanted or Car Pool, 8 a.m.-4:42 p.m., 135th & Spinning Ave., Gardena to Engineering Science Center, Aircraft ext. 2313.

Bob McClure To Guide NRC Basketball Team

Bob McClure has succeeded Duane Baptiste as commissioner of the NRC basketball team.

The team, which has just finished its practice games for the season, has entered the Anaheim Parks and Recreation Department's Industrial League. League games will be played at Western High School, 501 South Western.

The NRC team will be competing with Disneyland, Donn Munsell, Marco-Oak Industries, Textile Rubber and Chemical Co., and Beckman Instruments.

Team members include, in addition to Commissioner McClure, Jim Eakin, Dave Cost, Bob Lawther, Forest Long, John Rettbery, Ron Riviera, Jerry Reed, Jan Reid, Chuck Young and Mr. Baptiste.

SERVICE PINS

Seven Northrop employees have reached the 20-year mark with the company. They were Philip Ausman, Receiving Fabrication; Laura Bartosh, Electronics Assembly; Richard Clute, Assembly Inspection and Test; Robert Gallagher, Material Control; Donald Glascoe, Opto-Mechanical Precision Production; Lewis Neale, Procurement; and Gail Stalker, Cost Estimating.

An additional four completed 15 years of service. They are: Marie Blue, Cost Information; Irene Garkow and Constance Fondry, Electronics Assembly; and Don Hilyard.

FIVE AID YOUTH LEADERSHIP MEET

Five members of the Electro-Mechanical Division had important roles in the recent Sixth Annual Youth Leadership Conference at Golden West College, Huntington Beach.

The program was arranged by the Business and Professional Women's Clubs of Orange and San Bernardino Counties. Donna Swanson, ULMS Engineering, was the conference chairman for the Fullerton Club and its Youth Leadership Committee. Mary Polk, Configuration and Data Management, assisted Donna with workshop coordination.

Other Northrop people participating were Tom Barry, manager, Manufacturing and Methods Engineering, who served as a panelist. Doug Leavenworth, ULMS Engineering, and Bill Mitchell, Product Engineering, were consultants.

A GREAT TIME WAS HAD BY ALL who attended the NRC Yearend Children's Party. Top row, left, Arnold Aguilar with Robbie, Tommie, Nancy and Noelle get tickets from Diane Peak. The duck, reputedly, is Betty Stage; right, Jeffrey Herington opens his present. Second row, left, is one of the clever decorations made by the NRC Art Club; right, Clown Ray Ebbert has gifts for Paula and Lisa Munoz. That's Mama Jean and Grandmother Gloria with them. Third row, left, Lisa and Debbie Moore show Daddy Bill and Mama what the NRC Santa gave them. Right, Angela and Carol Saline with Mouse Roy Steinestel. At bottom, from left, are Pam Doveatt, Peggy Certain and Phyllis Schellenberg, Michael Scheffler and Kirk Sanders and a friend with Rabbit Rebecca Harkey.

Last Talon Delivery Closes T-38 Program

The T-38 supersonic trainer program — one of the most successful aircraft procurement programs in history — ended Jan. 31 when Northrop President Thomas V. Jones and Aircraft Division General Manager Welko Gasich delivered the final T-38 Talon to Brig. Gen. Donald G. Nunn, commander, Air Force Contract Management Division.

General Nunn then turned the last Talon over to Brig. Gen. Michael C. McCarthy, chief of staff, Air Training Command, prime user of the trainer.

The Electro-Mechanical Division played an important role in the T-38 program as a subcontractor to the Aircraft Division.

Grant Gunderson, program manager for interdivisional programs, said the division joined the T-38 program in 1964.

"Performance of the T-38 has been outstanding," Mr. Gunderson said. "And all of us in the division are proud to have been a part of it. Our contributions include building the ailerons, engine mounts, control sticks, rudder pedals, throttle controls, diverter valves, speed brakes and miscellaneous hardware.

"We delivered our last contribution, a speed brake, on Nov. 9, 1971," Mr. Gunderson added. "The experience and expertise of our T-38 assembly people is now shifting to building the same items for the new F-5E."

In accepting the last Talon, General Nunn said, "The T-38 did what Northrop said it would do. It was delivered on schedule. And it cost what they said it would cost."

The records show that the first Talon cost $2.3 million, but that production efficiencies gradually reduced the price until the final Talon was delivered at a price slightly over $500,000.

The first production Talon was delivered in March 1961 and since that time more than 24,000 student pilots have trained in the Talon, while logging more than 3.7 million flight hours.

The T-38 also achieved a record for outstanding safety. In 1959 it became the first supersonic aircraft in USAF history to complete flight testing without a major accident. This is a record equalled only by Northrop's F-5 Freedom Fighter.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Northrop Corporation, Los Angeles, California Vol. 30, No. 2 February 1972

Pettis Retires As Company Doctor

Dr. E. M. Pettis, medical supervisor for the division, retired and was succeeded by Dr. Frank L. Amato.

Dr. Pettis, who served the division for 15 years is recognized as an outstanding authority on industrial medicine. He was born in South Dakota in 1905 and started as a teacher in a one-room schoolhouse. Later he attended medical school and practiced in Michigan before moving to Fullerton in 1948.

His successor, Dr. Amato, was born in Brooklyn, New York, in 1934, receiving his M.D. degree from the University of California's College of Medicine, Irvine. From 1968 through 1970 he served in the U.S. Navy aboard the hospital ship Sanctuary and with the 1st and 3rd Marine Divisions in Vietnam. He returned to Fullerton in 1970 as emergency room physician at St. Jude Hospital and then entered private practice with Dr. Pettis.

VEGAS TRIP SET

Another of the popular Las Vegas trips has been scheduled for April 14 through 16, according to Jack Kinzer, NRC Travel Club commissioner.

Plans are now being formed for the trip and will be announced later, Mr. Kinzer said. "It appears that we will be staying at The Mint and that the price will be about $35.58 per person."

THE DIVISION MANAGEMENT CLUB installed officers at the February meeting. Front row, from left, Bill Johnston, secretary; Gene Jessick, treasurer; John Burke, outgoing president; Art Eckel, president; Doug Wilson, past sergeant-at-arms and new vice president; and Bob Montgomery, sergeant-at-arms. Back row, from left, Joe Saline, past secretary; Chick Hunt, past treasurer; Tom McGaughey, past president, and Robert Abel, past president.

FRANK LYNCH SAYS

'Division Headed Upward'

The Electro-Mechanical Division has "turned the corner and is headed back upward after having gone through probably the most difficult period the aerospace industry has faced in the last 25 years," Frank W. Lynch, vice president and general manager, told members of the division Management Club at its January meeting.

Mr. Lynch, who has just completed his tenth year with the division and his 20th year with Northrop, first reviewed for his listeners the present state of business in both Northrop and the Electro-Mechanical Division.

In reviewing the 1971 accomplishments of the division, Mr. Lynch said that they substantially met the predictions of the Five Year Plan formulated two years ago. Lags in certain programs were made up by acquisitions in others.

In discussing the present situation, Mr. Lynch said that acquisitions of new programs hit a bottom in 1970, but have shown a good recovery in 1971.

"This will mean a reasonable level of over-all employment stability in 1972," he added. "We expect that while over-all employment will average out at about a constant level there may be some variations on a quarter-to-quarter basis and in different areas of activity."

On specific program areas, Mr.

(See UPSWING, page 6)

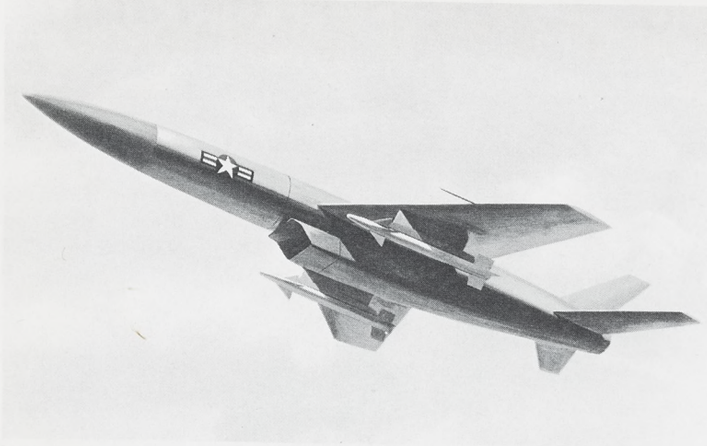
AID Drive Begins 21st

The Electro-Mechanical Division will conduct its 15th annual AID campaign from Feb. 21 through 28, according to Duane Baptiste, Employee Services.

Personnel now participating in the AID program will be given the opportunity to increase their donations and those not now in the program will be given an opportunity to join.

Last year Northrop Huntsville, a unit of Northrop Services, Inc., led all Northrop organizations with a 98 per cent participation in the AID campaign.

ARMY SPEC 4 Scott Alexander, son of Ben Alexander, bench machinist, recently won the Bronze Star for Valor as a rifleman in Co. D, First Battalion, 7th Cavalry, in action near Bien Hoa, Vietnam. The Bronze Star for Valor recognizes acts of heroism in ground combat against an armed hostile force.



VENTURA'S RPV CONCEPT, one of several Remotely Piloted Vehicle designs conceived by Ventura Division engineers, is this air-to-air model. Other RPV's would have air-to-ground, surveillance, and interdiction capabilities. Ventura is currently studying the RPV approach to tactical systems for the U.S. Air Force. Ventura artist Jack Calder provided the rendering.

Top Technical Team Preps Lightweight Fighter Bid

"Northrop has staffed its Lightweight Fighter team with a group of men whose heritage of lightweight fighter technology is unequalled in the U.S. aviation industry."

With these words Welko Gasich, Aircraft Division general manager, announced Northrop's intentions to compete in the USAF Lightweight Fighter Prototype competition and named Walter E. Fellers to head a special team of experts assembled for the task. Proposals in this prototype aircraft competition are due this month.

Mr. Fellers, who reports directly to Mr. Gasich in this assignment, is an internationally recognized leader in the field of research and development involving fighter aircraft. As manager of Advanced Systems, he has led the development of air combat analysis techniques and fighter design technology.

Since the 1940's, Mr. Fellers has been engaged in the development of primary fighter aircraft. Before joining Northrop, Mr. Fellers was a key member of the North American Aviation design team that developed the P-51, F-86 and F-100 USAF fighters and the FJ-1 Navy fighter.

Mr. Fellers has played leading roles in developing such highly successful Northrop aircraft as the T-38 trainer and the F-5 fighter. He was responsible for the advanced design of Northrop's A-9 entry in the A-X competition. He is one of the men intimately involved in developing the Northrop P530 Cobra air superiority fighter.

Mr. Fellers is one of the early supporters of the theory of air combat maneuverability which has become a design criterion for new fighter aircraft emphasizing air combat superiority.

Mexican Chamber Tabs Ed Aguilar

Northrop's Ed Aguilar was installed recently as the first vice president of the Mexican Chamber of Commerce of Los Angeles.

Mr. Aguilar is head of the Aircraft Division's office machine repair function and a Northrop 20-year veteran. He has been a member of the Mexican Chamber for many years, a director for eight years and previously served as its treasurer.

Acutely interested in Mexican-American affairs, Mr. Aguilar has served as a Northrop representative on the Vice President's Task Force on Youth Motivation, in various Equal Opportunities programs, and as a membership drive worker for the Chamber.

O'Halloran, Leavenworth To Fill Top NORAID Posts

Dan O'Halloran has been named chairman of the board of directors and Doug Leavenworth president of NORAID, Northrop's in-house charity organization, at a January meeting.

Mr. O'Halloran, Chuck Benson, Paul Jacobs, Whitey Lowe, Frank Mathes, John States and Sal Xifo represent the Aircraft Division; Mr. Leavenworth Electro-Mechanical; Lloyd Jones Electronics; and Frank Smith the Corporate office, on the board.

Mr. Xifo serves as vice president, Ernie Boren as treasurer and Marie Tully as secretary for the coming year. Mrs. Tully has been re-appointed administrator, Jo Roth of the Aircraft Division, deputy administrator, and Rudy Rivero, accountant, for another year.

The Hawthorne Aircraft Division NORAID committee is chaired by George Matuskey and includes Floyd Boggus, Lucianna Clack, Ted Garvey, Bill Hayman, Jo Roth, Bill Steen, Larry Brown and Jim Zimmerman. The Edwards AFB committee is comprised of Les Ferguson, chairman, Frank Harrison and Frank Ramme, while the Palmdale Committee is chaired by Guy Patt and includes Eutha Dame and W. W. White.

Harry Clark chairs the Electronics Division committee comprised of Roland Gagnon, Eloise Howell, Hollis Smith and Donald Weaver.

Duane Baptiste chairs the Electro-Mechanical Division committee with William Carey, Carl Jensen and Sally Moore as members.

Charles White, chairman, and Marlin Sloan and Riley Ponder comprise the Huntsville, Ala., committee.

MOUNTAINEERS

The Northrop Mountaineers will join with the Hundred Peaks Section of the Sierra Club in sponsoring a weekend of activities at Joshua Tree National Monument Feb. 26-27.

MARIE MURNANE RETIRES

That Friendly 'Hello' Turns to 'Goodby'

After 28 years of saying, "hello" to Northrop telephone callers, Marie Murnane is saying, "goodby."

Mrs. Murnane, communications manager, Aircraft Division, retired Feb. 4, after working with Northrop since September 1943.

Mrs. Murnane started her telephone career with the Bell System in her hometown of St. Paul, Minn., "Probably because I was always fascinated by the telephone."

In 1937, she came to California with her husband and son and worked for a short time as a secretary. A friend informed her of an opening at Northrop for a switchboard operator. Marie decided she would rather sweat over a switchboard than a typewriter and she joined Northrop in 1943, working in the telephone and telegraph sections which were located in the Bomb Shelter where Gate III now stands.

Marie was assigned to the Corporate office in Beverly Hills as the lead operator and spent nine-and-a-half years in this capacity.

During more than a quarter century at Northrop, she has worked with approximately 75 operators. "I can remember them all," she said. "This is not a very large number of people, our turnover of operators on the switchboard has never been great. I served under five Corporate presidents and five department managers."

Marie Murnane

Mrs. Murnane said that her 28 years at Northrop have been . . . "fascinating. After a while you learn to recognize voices and can tell a great deal about an individual just from the tone of his voice. The corporation's activities have become so far flung and diversified, that you never can tell when a call is coming from some exotic foreign land or locally, especially since technical improvements and the implementation of satellites have vastly improved transmission quality."

Receiving calls from the White House, or attempting to locate employees for emergencies, Marie has handled them all.

Final Talon Delivered At Palmdale Ceremony

DIGNITARIES taking part in delivery of final T-38 Talon are backed by the first T-38 delivered, left, and the last. Welko Gasich, Aircraft Division general manager, serves as emcee above. Below is Brig. Gen. D. G. Nunn, commander, AFCMD, turning over kingsized check to Mr. Gasich and Northrop President Thomas V. Jones symbolic of final payment in a program that has extended well into its second decade.

Tributes to The Talon

Brig. Gen. Donald G. Nunn, commander, AFCMD, USAF:

"I am delighted that Northrop Corporation built an airplane that did what they promised it would do, delivered it on a schedule they said they would deliver it on, and did it for the money they said it would cost."

Brig. Gen. Michael C. McCarthy, chief of staff, ATC, USAF:

"I have never heard anyone describe the T-38 as anything but a beautiful airplane. It is reliable in every parameter, a great performer, a remarkable airplane. It is a tolerance airplane, one that has passed the test of time to become more reliable with age."

Col. John R. Lindsay, deputy director, F-5/T-38 SPO, ASD, USAF:

"The T-38 Program easily qualifies as one of the most successful Air Force programs ever, as to costs, schedules, operational suitability and safety."

Thomas V. Jones, Northrop president:

"The T-38 Program stands as an inspiration of what can be done when people with courage and imagination using innovative approaches work together as a team to solve a specific need. We owe much to a small group of people who believed in this approach and worked with us."

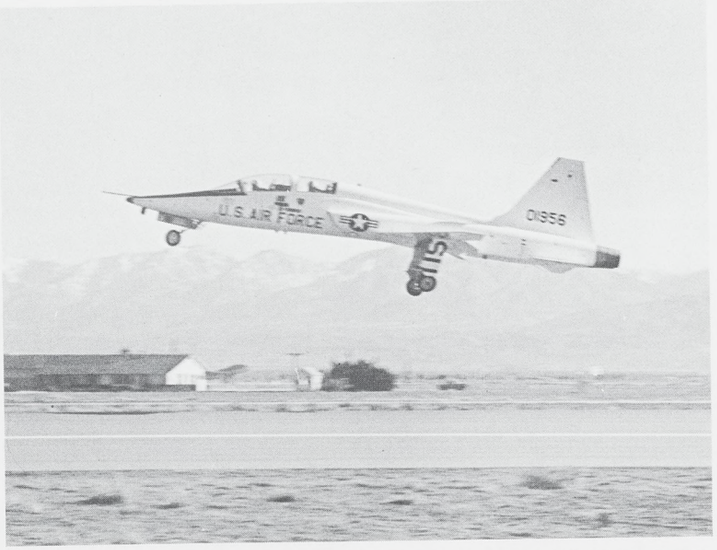
Congressman Barry M. Goldwater, Jr.:

"This Air Force-Industry team effort stands as a model in military aircraft procurement, a well-run effective program resulting in a high performance product at the lowest cost. The taxpayer would gain if all our federal programs, non-defense as well as military, met the same standards of efficiency."

Aerospace Daily:

"The T-38 project was unusual in that over a manufacturing span of 11 years the Air Force found no need to make a model change. Moreover, all deliveries without exception were on time and on cost. Five years after it went into service, the T-38 cost about 60 per cent less than when deliveries were begun despite inflation and cost escalation."

COL. J. R. LINDSAY, deputy director, F-5/T-38 SPO, called T-38 Program one of most successful Air Force procurement programs ever.



BREAKING GROUND on a flight from Palmdale to Randolph AFB, Texas, is the final Northrop T-38 delivered, the 1,187th ordered for use by the Air Force, Navy, NASA and the German Air Force.

READY TO FLY — Brig. Gen. M. C. McCarthy, left, and Lt. Col. Vince Roy sign final documents with Northrop Inspector Al Harding prior to flight.

Birthday Edict Returns Williams to Greenhouse

M. R. (Bill) Williams had a choice. He could start growing orchids again or he could return his birthday present.

This came about because Mr. Williams had previously grown orchids while serving with the Air Force in Hawaii, but had given up the hobby when transferred to colder climates. As the years passed he often spoke of building a greenhouse and resuming his hobby.

He did nothing about it until 1966 when his doctor recommended a hobby as therapy for an ulcer attack. His four children pooled savings from their allowances and gave him money as a birthday present. There was a stipulation that he had to use the money to build an orchid greenhouse or return it.

With this incentive he started again and today has two greenhouses with 600 plants of some 500 varieties producing blossoms ranging from one-quarter inch to some as large as 11 inches across. In addition he has another 800 plants growing in trees outdoors.

Mr. Williams saw some orchids growing in Hawaii in 1945 and became interested. He got two plants and kept expanding until transferred in 1948 to Selfridge AFB, Michigan, where the climate was not conducive to outdoor orchid growing.

The constant moves of military life made building a greenhouse impractical and he gave up the hobby until induced to return by his conditional birthday present.

While he now has close to a thousand different types of orchids, he says that he is still just beginning. More than 3,800 different native types have been identified, and there are over six and one-half million hybrids.

Mr. Williams works with the Aircraft Division Product and Supply Support, on spares for the A-9 program.

ORCHIDS FOR THE LADIES AT THE OFFICE
Bill Williams with Claire Payne, left, Helen Kelley and Jack Nation.

THIS LADY PACKS A MEAN BRICK

Donna Rothwell, 15, is now the world's champion women's brick carrier. The record is unofficial, but has been submitted for official recognition.

Donna is the daughter of W. A. Rothwell, who is now with Northrop International after working in the Aircraft, Electronics and Electro - Mechanical Divisions.

According to Mr. Rothwell, Donna carried a nine-pound brick on a two-mile walk to break the women's brick-carrying record. The previous record, according to Guiness Book of World Records, was 1.6 miles with an 8.75 pound brick.

During the record walk, from Corona del Mar school to her home in Newport Beach, she was not permitted to stop, rest or drop the nine-pound-load. Donna was accompanied by a neighbor, Bruce Robinson, who acted as witness for the record walk. He saw the former record in Guiness and suggested Donna try to beat it.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

MEDICINE MAN AND INDIAN GUIDES
Don DeOrio with sons Keith, left, and Todd, in costume.

Medicine Man Don DeOrio Leader in Indian Guides

The Indian Guides are "big medicine" according to Medicine Man Don DeOrio of the Electro-Mechanical Division.

The Guides are a youth program sponsored by the YMCA which differs from most programs of this type in being one that brings fathers and sons together. It is designed to foster companionship between the two. Their slogan is "Pals Forever."

The Guides are divided into nations and tribes and Mr. DeOrio is Medicine Man of the Bear Nations, and chief of the Comanche Tribe.

As Medicine Man he acts as the organization's spiritual and heritage leader. He leads opening and closing prayers and on campouts participates in the campfire council. He is also responsible for the Indian heritage ceremonies, such as bringing the drum to life.

Drums were the heart of the old Indian tribes and had to be brought to life with a sacred ceremony before they could be accepted as part of the tribe.

The Indian Guides program is for boys from the first through the third grades. Fathers can be any age if young in heart. Recently a new program was added, called the Warriors, which will keep the father - son program alive through grades four to six.

"The Guides are a very fine program because it is not just something to keep children busy. It is designed specifically to bring father and son closer together," Mr. DeOrio said. "Fathers of young sons will find this an excellent way to get to know their children."

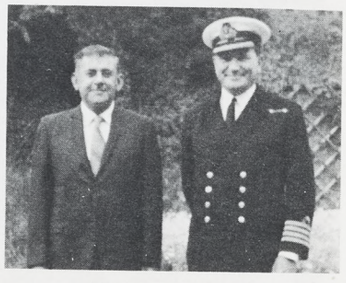
NORTHROP KIN AIDE TO QUEEN

All the pomp and ceremony of royalty have taken on added meaning for a Northrop family.

Last month Captain Stephen Barton of the Royal Navy took over duties as aide-de-camp to Queen Elizabeth II of England. Capt. Barton is the brother-in-law of C. I. "Brad" Bradley, security representative, Aircraft Division.

Mr. Bradley and his wife, Stella, met in Germany shortly after the end of World War II when he was serving as assistant chief of the Criminal Investigation Division for the European Command. They were married in 1948. Mr. Bradley retired from the Army in 1956 and joined Northrop in 1957.

"Capt. Barton has been in the Royal Navy 34 years and serves as chief of Training in regular duties," Mr. Bradley said.



AIDE-DE-CAMP
C. L. Bradley with Capt. Stephen Barton.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Station Wagon, 1966 Fairlane 390, full power, air, stereo tape, extras, $850. 213-324-1908.

Ford, 1966 Gal. XL convt., p/s, p/b, auto. trans., many extras, $700. 213-372-1809.

City Bus, Ige., GMC, diesel, auto. trans., $1,700. 213-370-3821.

Fiat 850, 1969, sport cpe., new clutch, batt., brakes, valves, $1,050. 213-457-9600.

T-Bird, 1956, completely restored, near new eng., trans., $2,500. 213-756-1812.

T-Bird, 1963, delux sport mod., convt., 48,000 mi., $599. 213-675-4786.

Ford, Ltd., 428 c.i.d., air, spd. control, AM-FM radio, 48,500 mi., p/s, $1,300. 213-329-3476.

Oldsmobile 98, 1969, full equip., stereo, cruise control, tilt wheel, $2,350. 213-877-0131.

Cadillac, 1964 Coupe DeVille, all power, $795. 714-639-4438.

Volkswagen Camper, 1966, pop top, ice box, water pump, rebit. motor, $1,500. 213-376-5156.

Volkswagen, 1968 Sunroof, r/h, $950. 213-326-7480.

Corvair, 1961 Monza, 4-spd. trans., 100 h.p., radio, shop manual, 66,000 mi., $150. 213-541-1625.

Station Wagon, 1964 Mercury Colony Park, p/s, p/b, a/c, r/h, $650. 213-868-0363.

MGB, 1966, wires, tonneau, r/h, $750. 213-677-7382.

Olds F85, 1963 new trans. & tires, eng. o/hauled, $450. 213-671-1815.

Mustang 289, 1966, air, wide tracks, $900. 213-328-5833.

Toyota, 1968 Corona DeLuxe, new motor & clutch, $950. 213-325-5441.

Camaro, 1967 SS 350, 4-spd., Cragars, pos-a-traction tires, $1,495. 213-375-3711.

Mustang, 1970 Boss 302, Cyclone headers, Mallory ignition, 3.9 posi., 16,000 mi., $2,600. 213-675-7443.

Truck, 1954 GMC, ¾-ton, $250. 213-370-1963.

Station Wagon, 1962 Pontiac Safari, 9-pass., p/b, p/s, a/c, $250. 213-375-0217.

Karmann Ghia, 1961, remanufactured eng., radio, stick shift, $299. 213-889-0191.

Corvette, 1968, 327 cc, 4-spd., convt., 30,000 mi., $2,600. 213-679-6000.

Roadster, 1923 T Ford pickup short bed body, all glass, 394 Olds eng., bored & stroked to 490 cu. in., street legal, many extras, $3,200. 213-423-9350.

Renault Rio, 1968, 4-spd., $700. 213-831-5304.

Renault R-8, 1963, 4-wheel d/brakes, r/h, $225. 213-831-9589.

Toyota, 1970 Corona, 4-dr. sedan, r/h, a/c, 12,500 mi., $1,900. 213-327-5792.

Volkswagen, 1965, $750. 213-327-2831.

Volkswagen, 1971, AM-FM radio, 7½" mag whls., $1,900. 213-373-4336.

Pickup, 1951 Ford V-8, 3-spd. stick, $325. 714-847-5938.

Vega, 1971 GT, fully equipped, still under warranty, 110 h.p., stereo tape, $2,800. 213-291-6075.

Miscellaneous For Sale

Couch, love seat, gold & white, $200. 213-327-3331.

Pool Table, 3½' x 7', precision lightweight table, oak woodwork, completely equipped, $150. 213-672-5649.

Acreage, 2.5 acres in Antelope Valley near Lancaster, city water & power, $6,500. 805-498-2304.

Condominium, 1400 sq. ft., all elec., secured bldg., 2-bdrm. & den, bltins, N. Inglewood, no planes, P.V view, $29,900. 213-674-1400.

Stole, mink, natural ranch, $100. 213-483-0100.

Pistol, Walther PPK, w/holster, $95. 213-785-1405.

Enlarger, Accura 35mm, $20. 213-324-0522.

Refrigerator, Gibson, $20. 213-672-1090.

Piano, upright, recently modern refinished, $180. 213-696-7529.

Pool Table, 3½' x 7', $40. 213-423-1363.

Miscellaneous For Sale

Chair, avocado green recliner, vinyl, $35. 213-324-8853.

Tripods, U.S. Army Signal Corps, $8 ea. 213-426-4060.

Home, corner, 2-story, 4-bdrm., 2 baths, f/place, cpts., dps., sprinklers, across from Los Cerritos shopping center, $31,500. 213-860-3022.

Dresser, 60" maple, dble., framed mirror, 10 drwrs., antique h/ware dove-tailed, $100. 714-830-3048.

Acreage, 2½ acres fronting on Adelanto pvt. airport, M-1, $65 dn., $65 mo., $6,500. 213-378-1026.

House, 3-bdrm., 1½ bath, 5½% loan, in Fullerton, $26,000. 714-871-5254, 714-362-2042.

TV Set, b&w, 19" portable Packard Bell, $19. 213-376-4831.

Rug, DuPont hi-low, beige 12'x13', 20 oz. waffle pad, used very little, $55. 213-675-7673.

Organ, Conn, tube, Leslie spkr., 2 full key-boards, full pedals, needs some repair, $400. 714-524-2128.

Couch, Colonial, brown, $75. 213-772-0365.

Carbine, 8mm Mannlicher Mauser, full stock, sling, 20 rd. ammo, $60. 213-327-4585.

Motorcycle, 1969 Yamaha, 125 twin, $300. 213-375-0493.

Radio, C.B. base, Courier Royale, 23 ch., Turner 454 sideband mike, 30' coax cable, $180. 213-371-8339.

Dinette Set, table, 6 chairs, metal, blue seats & backs, $20. 213-323-5119.

Lots, 6 dble. interment, Inglewood Park Cemetery, Park Terrace Sec., $1,000 dble. 213-320-7482.

Property, Ige., lakeview, waterfront, on Lake Shastina, terms, approx. .3 acres w/ view of Mt. Shasta, $34,500. 213-833-2584.

Trumpet, Conn, $95. 213-865-5084.

Motorcycle, 1971 Honda, CB 175, 900 mi., $500. 213-773-4165.

Mobile Home, 1968, Villa West, 20'x45', 2-bdrm., 1 bath, adult park, $8,500. 213-327-4914.

Horse, 8-yr.-old mare, 15.2 hands, western tack avail., $450. 213-375-5332.

Lot, near Running Springs, Calif. off Hwy. 18, $4,595. 714-637-4067.

Water Softener, Sears custom series, programmed cycle, never used, $100. 714-637-4723.

Land, in desert, Antelope Valley, $275 acre. 805-943-4085.

Baby Carriage, twin, converts to stroller, $25. 213-886-2534.

Bicycle, ladies' 26" Schwinn, 3-spd., $50. 714-892-1945.

Stereo, Sony AM-FM w/cassette recorder & playback, det. spkrs., walnut, $150. 213-545-3843.

Horse, Welsh gelding, 13 hands, for experienced rider, $150. 714-539-6203.

Living-Room Set, 2-pc. Kroehler, sage green, 6'2" cush. divan, T-cush. chair, $135. Other items. 213-670-2564.

Motorcycle, 1970 Honda 100 Scrambler, extras, $285. 213-476-1842.

Pictures, Japanese origs., color, framed, 8"x10", Geisha girl subj., 3 sets, $130. 213-326-0124.

Dress, square dance, size 14, turquoise w/ silver, $5. 213-325-6626.

Engine, 1962, recent o/haul, fits 1961-62 Lincoln, Ford, or Mercury, $75. 213-326-3620.

Tape Deck, player, radio comb., Grundig, 2-track, tapes, mike, spkrs., $40. 213-556-2728.

Communications Receiver, Hallicrafters SX-99, $45. 213-377-4623.

Lot, ¾ acre, so. side of Elsinore o/looking lake, water & elec. in, level bldg. site, $6,000. 213-530-3046.

Toolbox, Kennedy, mikes, blocks, gages, other tools, $75 or sell sep. 213-376-9875.

Floatation Wheels, & 11.50-16 high tires mounted on widened Porsche whls., $85 pr. 213-821-4180.

Camera, Cannon FT-Q1, f1.2 lens, leather case, tripler, 2 mos. old, $160. 213-371-4523.

Sailboat, Lido 14, 24' center board, trailer w/bearing buddys, cover, new shrouds & forstay, $925. 213-325-5705.

Crib, spring & mattress, mattress used 1 wk., $20. 213-644-3742.

Sailboat, 32', Col. Sabre, fully found, $4,750 or partnership. 714-675-1977.

Shotgun, 28 ga. single shot Winchester, $32. 213-328-1114.

Trailer, 52' Sahara, expanded living rm., screened porch, cabana, $3,600. 213-324-9476.

Miscellaneous For Sale

Saw, Craftsman 9" radial arm, blades, complete set of molding blades, adjust. dado blade ¼" to ⅞" wide, stand, $150. 213-534-2464.

Sewing Machine, portable, case, straight stitch, International, $25. 213-675-8031.

Bicycle, 27" white Peugeot, 10-spd., $100. 213-831-9020.

Carpeting, 45 sq. yds., green, $100. 213-378-4639.

Wheelchair, folding, $65. 213-833-5515.

Club Chair w/ottoman, off-white, custom made plastic cover, $25. 213-532-6175.

Pups, Chihuahua, AKC papers, males & females, fawn colored, $50. 213-866-1276.

Refrigerator, Hot Point, 11 cu. ft., coppertone, $60. 213-328-7571.

Sectional, 8', turq., & love seat, $40. 213-645-5516.

End Tables or commodes, 2 Danish walnut, never-mar tops, $15 ea. 213-541-3000.

Trombone, Getzen, B flat, case, $20. 213-370-6896.

Enlarger, 2¼ sq. to 35, sharp lens, $25. 213-327-4267.

Snow Chains, 3 sets, $7.50 ea. 213-676-6449.

Acreage, Oregon Dream Ranches, 20 acres ea., $275 acre. 714-525-3816.

Cemetery Lots, 2, Inglewood Cemetery, Avalon tract, $300 ea. 916-459-3333.

Acreage, 2½ acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, $6,500. 714-673-7752.

Couch, 8', gold, & 2 green chairs, $75 or sell sep. 213-671-4902.

Cat Run, or small dog, wire, 4'x8'x4', $16. 213-867-1479.

Ski Boat, 16' Esquire, Merc. 1000, cover, trailer, ski equip., $1,895. 213-325-5005.

Recliner, leather, brown, $15. 213-675-6668.

Piano, George Steck baby grand, dk. mahogany, $600. 213-378-1771.

Camera, 35 mm Pentax Spotmatic II w/1.4 lens, leather case, latest model, used twice, $199. 213-370-8001.

Sofa, convt., dble. bed, black w/walnut legs, $50. 213-641-8355.

Motorcycle, 1965 305 Honda Hawk, $290. 213-376-4341.

Motorcycle, 1968 Triumph Bonn 650, dual carb., chrome, $850. 213-372-7894.

Bicycle, Schwinn, 24", hand brakes, 3-spd., boy's, $40. 213-329-2842.

Surfboard, 9 Sears Sportsflite, $50. 213-329-1861.

Sofa, 3-pc. sectional, $150. 213-832-3502.

Accordion, 120 bass, white Frontalini, mus. stand, $200. 213-679-4442.

Bookcase, 30" x 74" w/sliding plate glass doors, $20. 213-296-1238.

Sailboat, Islander Bahama, 24', fully equipped, motor, bath & dinghy, $4,395. 213-675-6206.

Refrigerator, 1967 Hotpoint, 14 cu. ft., $60. 213-541-1423.

Gun, Frontier Colt single action, new mfr. 38 Special, $125. 213-375-4312.

Childcraft Series, 15 vols., $50. 213-831-6567.

Home, S. Gardena area, 3-bdrm., 2 baths, family rm., covered patio, sprinkler sys., all bltins, cpt., gas b-b-q, Ige. corner f/place, $35,000. 213-323-3796.

Washing Machine, Westinghouse, approx. 8 yrs. old, $30. 213-324-7059.

Crib, w/mattress, white, $20. 213-679-5506.

Dinette Set, white wrought-iron table, 30" x 48", glass top, 4 chairs, gold vinyl, $85. 213-377-1094.

Home, 3-bdrm., East Torrance area, 1,100 sq. ft., 1¾ bath, cpts., dps., fenced back/yd., 2-car det. gar., $30,500. 213-320-6388.

Wanted to Buy

Hair Savers, old, napkin holders, salt celars, cut glass & crystal, reasonable. 213-371-7711.

Honda, 1969, 350 cc Super Sport, up to $700, or $500 & 1964 Honda, 250 cc, consider other brand. 213-676-1018.

Duster, 340 or Demon, auto. trans., pay cash. 213-329-1705.

Fireplace Screen, brass, reasonable. 213-242-9723.

Stroller, twin type, w/7 wheels, in good condition. 213-863-3900.

Engine, 140 h.p. Corvair, comp. or part. 714-537-1454.

Bicycle, men's, 5 or 10-spd. Derailluer, Schwinn. 213-378-4567.

Cabinet Bed, twin-size. 213-641-1880.

Loud Speakers, 10" to 12", used, Raw, 3-way, JBL or equiv. 213-679-7378.

For Trade

Chrysler, 1962 Newport, 4-dr., auto. trans., p/b, p/s, 56,000 mi., trade for 1961-1963 Volkswagen, in good condition. 714-871-2598.

Free (To Be Given Away)

Pups, 6, born about Christmas, mother part cocker spaniel. 213-630-3888.

Peekapoo, 6 mos. old. 213-671-1660.

Dog, to adult home, silky female, papers. 213-542-4091.

Rentals Offered

Vacation Home, new, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, beach club privileges, $140 wk., $60 w/end. 213-377-3817.

House, Cerritos, 4-bdrm., dng. & family rm., cpts., dps., heated pool, 2,350 sq. ft., $395 mo. 213-860-9271.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patios, f/place, $30-$40 w/end, $70-$90 wk. 213-868-8040.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

House, 3-bdrm., den, 2 baths, furn., washer, dryer, d/washer, 4 blocks to Northrop, $250 mo. 213-833-2512.

Cabin, Big Bear City, 2-bdrm., 1 bath, $40. 213-320-6486.

Cabin, near Arrowhead & Running Springs, sleeps 4 to 5, $30 w/end. 213-370-7105.

House, 2-bdrm., fenced yd., gar., in Harbor City, adults, refs. required, no pets, $160 mo. 213-326-5566.

Condominium, 2-bdrm., furn., Palm Springs area, heated pool, $100 wk., $60 w/end. 213-327-8994.

Apt, unfurn., new cpts. & dps., 2 entrances, closed gar., adults, stove & refrig. if req'd., near 117 & Crenshaw, $130. 213-756-3669.

Rentals Wanted

Room w/board, 5 days wk., for quiet gentlemen till family moves down in June. Box 301.

Child Care

"Grandma" wanted to sit 5½ yr. old boy when ill or has vacation days from school. 213-378-1405.

Personals

I wish to thank my many friends & fellow workers for the wonderful gift & party on my retirement. HARRY TOMS.

Ride Wanted, 7:30 a.m.-4:12 p.m., Yorba Linda area to Bldg. I, Hawthorne. 714-524-0140.

Ride or car pool, 8 a.m.-4:42 p.m., 135th & Spinning Ave., Gardena to Engineering Science Center. 213-323-8213.

I would like to thank each & every person who helped to make my retirement from Northrop even more pleasurable than anticipated. HARRY BELCHER.

A special thanks to our friends in Engineering & Finance who were so thoughtful & considerate in the loss of our son, James. MAE & JACK LYLE.

To all my friends at Northrop, I would like to give my thanks & appreciation for the wonderful retirement party & gifts. MARGE & GORDON JARVIS.

We wish to thank NRC & fellow employees for the beautiful flowers & kind expressions of sympathy in memory of our daughter, Phyllis. JIM & ALICE SMITH & FAMILY, PAUL & SUSAN DUNAGAN.

Have gone, will travel, thanks for the terrific send off. GORDON GRIMM.

Interested parties to form family-type camping & touring caravan on circle trip to Bahia De Los Angeles, Baja, Calif., during Easter vacation, must have traction type vehicle. 213-353-0797.

It has been a great pleasure to have worked with so many nice people during my 23½ years at Northrop. Thank you for the retirement parties & gifts. HUGH WILSON.

I want to thank all my friends who helped in time of need while in the hospital & recovering at home. SONNY HERRON & WIFE, JUDY.

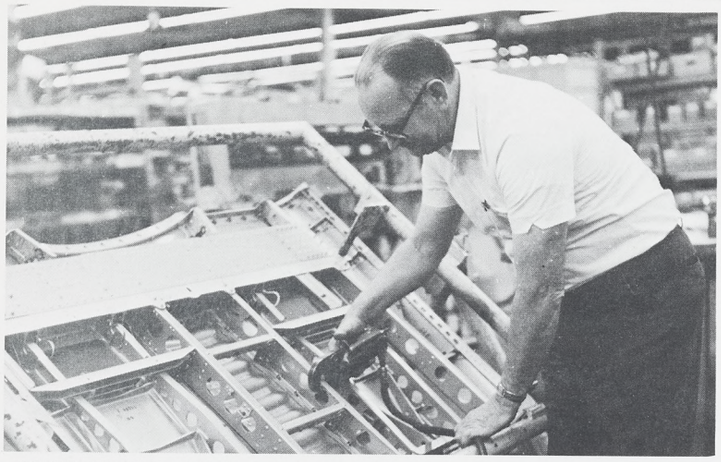
Strawberry, boysenberry & blackberry plants wanted free. Will take up unwanted plants. 213-679-5177.

My grateful thanks to all of you who helped & planned my retirement party to make it such a memorable event. And from now on—gone fishing. GEORGE SCHWALM.

For Sale or Trade

Tachometer, electronic, 3¼" illuminated, 240° dial, 4, 6, 8 cyl., $15 or trade for .22 rifle. 213-941-1865.

Drafting Machine, K & E, 24", & scales, $65 or will trade for gun, 45 cal. auto. 213-675-5258.



LEON SHADOWENS works on a dive brake for the last T-38 Talon. The Electro-Mechanical Division has provided components for the Talon since 1964.

TED HERZOG wraps up his final job before taking retirement to close out 27½ years with Northrop. He began work at Hawthorne making jigs for the B-35 and came to Anaheim in 1960 to work in Logistics.

LLOYD GRADY, right, receives his Northrop 20-year-pin from Brown & Root-Northrop Project Manager Harry P. Clagett in ceremonies at the Manned Spacecraft Center, Houston, Tex.

THE FALL NOONTIME Bridge tournament ended in victory for Chuck Stevens, right, and Jack Swanson, left, shown receiving their trophies from Jerry Winterton, tournament coordinator. The winning team had to beat off repeated challenges by the second place team of Nelson Owens and Chuck Smith to guarantee their win. Sixteen players took part in the tournament and competition was close all the way, according to Mr. Winterton. The Noontimers meet four days a week, Mondays through Thursdays. Their winter tournament is now under way. Anyone interested in playing may call Mr. Winterton at ext. 1286.

THELMA GRADY receives her retiree badge from Frank Munkres at Page Court. Mrs. Grady is retiring from Northrop and will start a child care nursery with her daughter, Gayle, who is also a former Electro-Mechanical Division employee. During her 12 years with Northrop, Mrs. Grady has always worked in assembly. Her first job was soldering on the F-5 and later she worked three years in Automation Systems on the Mark VII MTRE and Polaris systems. She thinks her most interesting job was on the JIMDIPS program. "I have made many dear friends at Northrop," Mrs. Grady said. "I will always remember everyone's kindness."

Armstrong to Work Within Anaheim City Government

William C. Armstrong of the Electro-Mechanical Division has been selected to work with the Anaheim city government under a two-year municipal technology program funded by the National Science Foundation.

The program is one of six National Science Foundation projects aimed at using aerospace technology to help local and state governments solve environmental and societal problems. Jet Propulsion Laboratory of the California Institute of Technology, Pasadena, is directing the program in which the City of Anaheim is participating.

The Electro-Mechanical Division will provide Mr. Armstrong with necessary back-up and support to the Anaheim program. The Northrop portion of the program is under the direction of Dr. W. B. Simecka, division vice president for Marketing and Technology.

Mr. Armstrong will also draw support from JPL's Space Technology Applications Office and NASA for city projects in which he will be involved.

Besides general information systems analysis, Mr. Armstrong will be engaged in such areas as communications command and control, applications of Community Antenna Television Systems, and special projects for most city departments, according to Keith Murdock, Anaheim city manager.

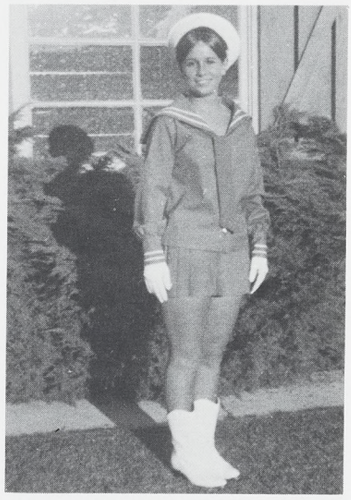
UPSWING

(Continued from page 1)

Lynch mentioned the brightening picture in Automation Systems, Environmental Systems, and in Support Operations conducted by NSI.

"In looking back on ten years with the division," Mr. Lynch said, "I am constantly impressed with the responsiveness and resiliency, as well as the capability of all our people. We are headed back upward after having gone through probably the most difficult period in the last 25 years in our industry. We have come out stronger, not weaker. We are more able, more competitive. This is a credit to all of you.

"We must sustain the upswing we have taken to insure our future. This means every opportunity must be approached with intensity and will and our best efforts. There is no room now to coast. We must maintain and increase our momentum. I am confident we will meet the challenge."



SEVENTEEN-YEAR-OLD Pam Burke, president of the Pacifica High drill team, has led her team to six first place awards for precision marching. The latest was at the Chaffee Tournament of Bands. Pam is the daughter of Northrop's John Burke.

'HOT LINE' SPEEDS PHONE CALLS

A Wide Area Telephone Service (WATS) "Hot Line" designed to speed up out-of-state business calls went into operation at the Electro-Mechanical Division Jan. 10, according to Don McInnis, manager, Operations.

The hot line will be in addition to the two WATS lines previously leased for conducting long distance calls. The increasing number of out-of-state business calls sometimes backlogs calls for as long as two hours.

The new hot line is intended to provide faster service for priority calls which cannot wait for the normal WATS service. However, such calls will be limited in time. At the end of three minutes the operator will inform the caller that his time is up and at the end of four minutes the call will be automatically disconnected.

Mr. McInnis said the new hot line service should cut the need to place commercial calls when the WATS lines are tied up and should result in telephone cost economics. "In addition," he said, "we expect the increased use of the hot line to reduce peak period WATS waiting time to less than one-half hour from the present two hours."

Navy Presents Poseidon Flag to Division

The U.S. Navy presented its Poseidon Flag to the Electro-Mechanical Division, honoring the division's contribution to the Poseidon conversion program.

The work consisted of converting Polaris Missile Test and Readiness Equipment for use with the more modern Poseidon missile system.

Presentation of the Poseidon Flag was made to Frank W. Lynch, vice president and general manager, by Commander Bruce Butrym who represented Rear Admiral Levering Smith, director, Strategic Weapon Systems.

In a letter read by Commander Butrym at the ceremony, Admiral Smith said, "As a member of the Poseidon team you have made significant contributions in the development and production of missile checkout equipment, thereby contributing materially to the success of the Poseidon program."

Commander Butrym added his own comment on the dedication of Northrop employees who worked on the program.

In accepting the award, Mr. Lynch said the division's highly successful work with Poseidon was based upon teamwork. He mentioned particularly the contributions of Lockheed Missiles and Space Company, prime contractor on the Poseidon system, and the U.S. Systems Program office to the success of the program.

To division employees Mr. Lynch said, "Presentation of the Navy's Poseidon Flag to the division is an outstanding honor and a milestone in our work with the Fleet Ballistic Missile submarines. All who took part in this program — engineers, assemblers and field representatives — can take pride in their contributions to the success of the Poseidon program.

A Look Ahead

"This success could not have been possible without superior technical knowledge, pride in craftsmanship, and a determination that refused to give in to obstacles. Not only am I proud of this award which honors our past performance, I am also confident that the same spirit, technical ability and teamwork will be carried forward into ULMS, the next generation of Fleet Ballistic Missile submarines."

The Polaris/Poseidon program is under the direction of Ralph C. Dix.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Northrop Corporation, Los Angeles, California Vol. 30, No. 3 March 1972

Perfect Record For Attendance

When Bob Gallagher, Manufacturing Control, recently reached his 20-year service date with Northrop he could honestly say that it was really 20 years, for he has never missed a single work day in all this time.

Mr. Gallagher began work here in December 1951 and has been in Manufacturing Control's Scheduling Department most of these years.

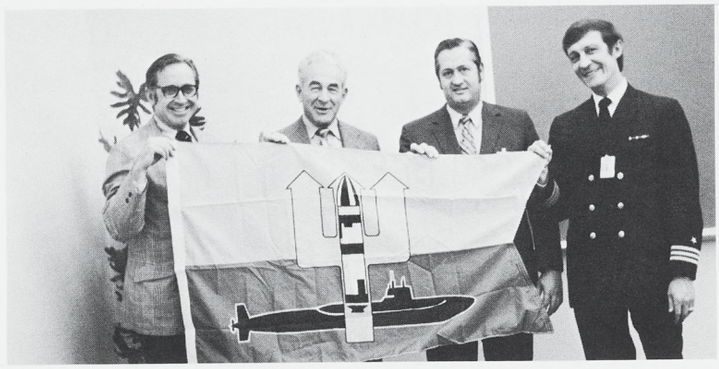
In addition to coming to work over 5,200 times during these 20 years, Mr. Gallagher has also found time to be active in community affairs. He is active with the Optimist Home for Boys in Los Angeles and also works with the Youth Cadet Club.

BURKE RUNS FOR CITY COUNCILMAN

John Burke, Security and Plant Protection, has announced his candidacy for office of councilman in Garden Grove.

Mr. Burke said his decision to run for public office was based upon his desire to become more involved in community affairs.

"Every community has citizens with specialized backgrounds who could make genuine contributions to civic affairs," he said. "My own background is in public protection and my decision to run for office was the hope that I can put this background to community use in aiding our police and fire departments meet the challenge of today's society."



WITH NEWLY PRESENTED Poseidon flag are, from left, Frank W. Lynch, Frank McNabb, Ralph Dix, and Comdr. Bruce Butrym.

Northrop Employees Participate In Black History Week Activities

Four Northrop Electro-Mechanical Division employees participated in Black History Week activities during the recent observation from Feb. 13 through 19.

Black History Week, which began in 1926, is an annual observation highlighting contributions of Black Americans and their African ancestors. Its purpose is to point out through studies of the lives and work of great American Blacks, that Blacks are not people without a past or a stereotyped racial group, but are active, creative and productive.

Those making contributions to Black History Week were:

Marjorie Simpson, Purchasing: "With several friends I sponsored a book review in my home with emphasis on Black History. My object was to promote, observe and to create understanding of the Black Man. The review was based primarily on documentary material, touching on the Revolutionary, Nationalist, Abolitionist, Civil War and Civil Rights eras.

"Civil Rights brought the most response because of the great potentials in assuring that all may profit from civil rights regardless of race, color or creed."

General L. Johnson, Jr., Forward Planning: "My participation took place with the Compton Youth Scholastic and Athletic Foundation where I am a coaching member of the Pop Warner football program. We shared in the form of a rap ses-

(See BLACK HISTORY, page 6)

Murphy Elected Olson Treasurer

John Murphy, former manager, Indirect Budgets for the Electro-Mechanical Division, has been elected treasurer-secretary for Olson Laboratories, Inc., according to R. L. Gibney, vice president, Environmental Systems.

Olson Laboratories, Inc., is a Northrop subsidiary and a national leader in automobile vehicle emission monitoring.

He was succeeded in Indirect Budgets by James Henrich.

BLACK HISTORY WEEK participants, from left, Marjorie Simpson, L. S. Forte, Bob McClure, and General L. Johnson, Jr.

HARVEST TIME—When the Electro-Mechanical Division facility at Anaheim was built, orange trees from the grove that once covered the site were left standing as landscaping. Now when the fruit ripens members of the NRC Horticulture Club harvest the crop and sell it to interested employees. Shown at work are, from left, Betty Schulz, Bert Beard, Jim Auest, Sefie Garcia, John Barth and Joe Saline.

Shareholders Told Credit Union Enjoys Good Year

Shareholders attending the Feb. 1 annual meeting of the Northrop Credit Union heard officers and directors report a successful year of operation during 1971 in which total assets top $10 million for the first time.

Reports revealed that, despite current economic slowdowns in which the number of loans were down, the total of outstanding loans granted through the Credit Union increased. Above all, this reflected a policy of expanding loan possibilities.

Good news came when the Credit Union noted that first mortgage on home loans would be reduced from a current nine per cent to a new seven and one-half per cent rate. Also, members will now be able to obtain loans on new boats. Additional studies are in progress to expand loans into other areas.

Shareholders elected as directors: Harvey L. Cook, L. L. Cripe, M. B. Delaney, R. D. Hampton, J. J. Richardson and W. D. Schramm of the Aircraft Division; R. A. Lindsey and J. S. Penrod of Electronics Division; and B. M. Slotnick of Northrop Data Processing. The board named Mr. Lindsey president, Mr. Cook vice president, and Mrs. Delaney, secretary-treasurer.

Also elected was a credit committee comprised of Margaret Faubion, and R. C. Pontious of Aircraft and W. H. Justice of NDP, the chairman. The supervisory committee elected was comprised of S. D. Parr, Electronics, A. W. Johnson, Electro-Mechanical, E. R. Foord and H. H. Sweet, Aircraft, and T. A. Hruska, NDP, chairman.

Subordinate officers named are: Florence Montgomery, assistant treasurer; Catherine Walker, cashier, Helen Walker, membership chairman, and Margaret Faubion and R. C. Pontious, loan officers.

Travel Club Maps Plans

Four group tours for the 1972 season will be discussed by the Northrop Travel Club at an 8 p.m. March 30 meeting set for the NRC Clubhouse.

A three-week, eight-country visit to Europe is planned for Sept. 25 through Oct. 15 at a price of $895. Alaska will be the destination of an 11-day tour Sept. 26 through Oct. 6 with prices starting at $449. And a 10-day combination air-cruise visit to the Caribbean is set for Nov. 30 through Dec. 9 at a price of $469. Rounding out the year will be NRC's trip to Hawaii over the long yearend holiday.

STAMP CLUB TO PROCESS COVERS

Northrop Stamp Club has made arrangements to process first flight covers for two Northrop aircraft scheduled to make initial flights this year—the A-9A and the F-5E.

The covers will have a cachet commemorating the event along with an Edwards AFB cancellation. The club will offer the covers for sale to employees soon after each flight.

Meeting the third Monday of each month, the Stamp Club will feature for March a new film titled "Stamps: a Nation's Calling Cards."

SME CHAIRMAN

Al Siggson, Aircraft Division design standards specialist, has been elected chairman of Chapter 84, Society of Manufacturing Engineers.

Mr. Siggson, recipient of the SME President's Outstanding Service Award in 1967, has served the chapter as treasurer, third, second and first vice chairman and in committee assignments.

CODE CLASSES

Northrop Radio Club has launched a new series of code classes, open to all interested employees. Classes are held at 7:30 p.m. each Wednesday in NRC Clubhouse, Hawthorne.

ICE CAPADES

A block of 500 "best in the house" reserved seats for the 5 p.m. April 23 production of Ice Capades at the Los Angeles Sports Arena have been reserved just for Northrop families.

Regular ticket outlets are offering the $5 tickets for just $3.50 each.

JACK BEHRENS IAE FELLOW

Jack Behrens, Aircraft Division, was inducted last month as a Fellow of the Institute for the Advancement of Engineering.

This honor recognizes those engineers who have contributed to the advancement of the engineering profession in Los Angeles.

Mr. Behrens was nominated for the honor by the Southern California Section, American Association of Cost Engineers, an organization he has served as president, vice president and director in addition to numerous committee chairmanships.

NEW OFFICERS of the Northrop Retirement Club, President Harold Barbey, Vice President Margaret Bruchez, Secretary-Treasurer Jeannette Kaupp and Segeant-at-Arms Alvera Hayes, are making plans for the group's annual reunion in May.

HOW OLD, PECK?

Peck Campbell, Electro-Mechanical Division, came to work with Northrop in 1956 and has been on the job ever since. But according to his reckoning it will be another four years before he can legitimately qualify for his Northrop five-year service pin.

You see, he hired in on February 29, 1956, and only has an anniversary every leap year.

His comment: "I wish I only felt four years older."

TICKET CHANGE

Northrop personnel holding Pacific Drive-in theatre discount tickets purchased in-plant must use those tickets before March 31.

Toward the end of March Northrop outlets will offer new discount tickets reflecting a price increase. These ducats sell for $1.25 and represent a savings of 50 cents per ticket.

NAVY OPENINGS

Northrop service veterans with certain skills who may be interested in earning extra cash on weekends have been invited to investigate the opportunities offered by the U.S. Naval Air Reserve at Point Mugu.

Information is available through the Recruiting Officer at Point Mugu. Either write or call collect, (805) 982-8744.

UNITED STATES SUPREME COURT, WASHINGTON

UNITED NATIONS HEADQUARTERS, NEW YORK

George A. Fuller Company Founded After Civil War

The George A. Fuller Company, acquired by Northrop in late 1971 as an expansion of the company's commercial business interests, is one of the nation's leading, and oldest, building construction firms.

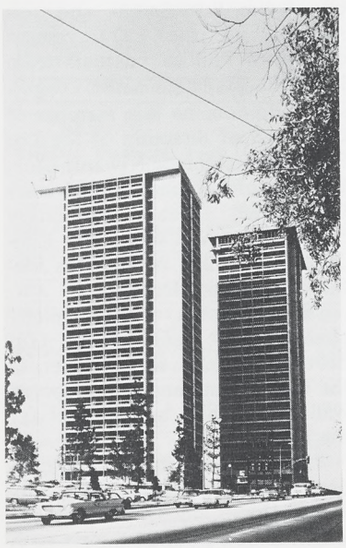
Because the Fuller heritage, dating back to the Civil War reconstruction period, is now a part of Northrop history, the News is presenting a pictorial essay of some of Fuller's building accomplishments to better acquaint Northrop employees with this fine organization.

Among historic buildings constructed by Fuller in Washington, D.C., are the Lincoln Memorial, U.S. Supreme Court, National Cathedral and many others. In New York the list includes Pennsylvania Station, the Flatiron, Plaza Hotel, Union Carbide, Time/Life buildings, the New York Coliseum, United Nations Headquarters and Roosevelt Raceway.

Californians should recognize such Fuller structures as the Century Plaza Hotel, Century City Towers, Marineland of the Pacific in Los Angeles, the Salk Institute in Torrey Pines and the Bank of America Headquarters in San Francisco.

GENERAL MOTORS, NYC

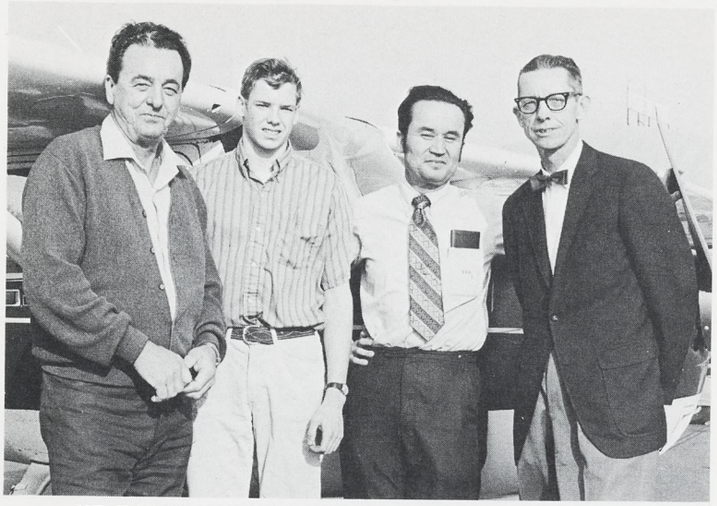
UNION CARBIDE, NYC



CENTURY CITY TOWERS

LINCOLN MEMORIAL, WASHINGTON

ALUMINUM CO. OF AMERICA



HE EARNS PRIVATE LICENSE ON 17TH BIRTHDAY
From left, A. Gabardi, Bill Johnson, Ron Kramer, Johnny Johnson.

Bill Johnson Celebrates 17th Birthday By Earning His Private Pilot's License

February 10 is a day to remember for a Northrop son, his proud father, and a third Aircraft Division employee who played a key part in making it possible.

On that day Bill Johnson celebrated his 17th birthday by obtaining his private pilot's license, a goal he has sought after one year of flying as a student pilot. Bill is a junior at South High, Torrance, an "A" student who was quarterback and most valuable player on the school's junior varsity football team as well as a varsity letterman at defensive safety. He aspires to attend the Air Force Academy.

His father is H.A. "Johnny" Johnson, a retired Air Force test pilot who flew Northrop P-61s and the N9M wing. For four years he held the international 1,000 kilometer closed course speed record, set in a P-80 during his 10-year Air Force career.

Ron Kramer, Tactical Operations Analysis, was Bill's flight instructor.

Weyl's 'Spirit' Sweeps Contest

A scale model replica of Lindbergh's "Spirit of St. Louis," designed by one Aircraft Division man, built and flown by another, has garnered its share of attention lately.

Gus Morfis, Design Integration, is the designer. Carl Weyl, manager of F-5 Aerodynamics, built the "quarter midget" radio-controlled model and flies it in competition.

These members of the Northrop Model Airplane Club were on hand in December for competition with the Orange Coast R/C Club in Fullerton.

Mr. Weyl completed his model just before the contest and flew it for the first time that day. He swept to victory in every heat entered, then won over-all honors in a flyoff. The model is featured in the April edition of the magazine R/C Modeler.

WALTI TABBED

John Walti, Aircraft Division Value/Producibility engineer, was installed recently as treasurer of the Association of Santa Monica Bay Yacht Clubs.

Mr. Walti is currently staff commodore of the Palos Verdes Yacht Club. At a recent installation dinner at the Del Rey Yacht Club, Mr. Walti was awarded a plaque and new burgee for his highly successful coordination of the 1971 and 1972 racing calendars for the Santa Monica area.

CARL WEYL AND HIS 'SPIRIT OF ST. LOUIS'

Beautiful Writing Helps Revive Whaling Memories

Betty Corson, wife of Bob Corson, Electro-Mechanical Division, Target Detection Devices, is helping keep alive memories of the nineteenth century American whaling industry.

Mrs. Corson's calligraphy — the art of beautiful writing — has been used to explain exhibits in an historical exhibition at Whalers Village, Kaanapali, Maui, Hawaii. The descriptions are facsimiles of entries from the captain's logs of old whaling vessels.

Mrs. Corson first became interested in calligraphy when, at the age of 12, she happened to use an old style dip pen in a post office.

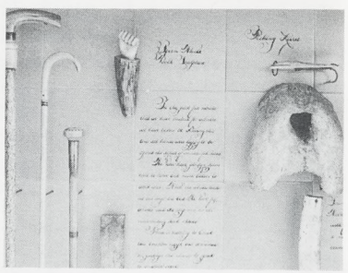
She kept practicing just for fun and several years ago began inscribing certificates, diplomas and place cards as well as wedding invitations and announcements.

In 1970, some of her work was seen by Edward Carson Beall, a Palos Verdes architect who was then designing the Whalers Village and Museum. He explained the project to Mrs. Corson. The artifacts in the museum were to be displayed in cases spread throughout the village and were to be mounted on tile panels.

The problem was whether or not she could write on the tiles, in what may be described as "old fashioned copperplate hand," using glazing stain instead of ink. The tiles would then be fired.

Numerous trials and experimental firings finally produced the proper mixture and the writing began in September of 1970. Some 15,000 words later, the work is now nearing completion.

Mrs. Corson continues her calligraphy between her teaching at Los Angeles' James Fenimore Cooper Opportunity School and doing graduate work at California State College at Long Beach.



CALLIGRAPHY

REUNION SET

Dinner reservations for the annual Northrop Retirement Club Reunion May 17 at the Western Avenue Golf Clubhouse, 1930 120th St., are now being accepted by Personnel Activities.

The cost is $3.50 per person with a deadline of May 10. No tickets will be sold at the door. Social hour begins at 3 p.m. with dinner at 6 p.m. Checks are to be made payable to Northrop Retirement Club.

Johnson Family Leads Busy Life

Staying involved in community activities is the rule for members of the family of Harold L. Johnson of Aircraft Graphic Operations.

Mr. Johnson has just been named chairman of the Los Alamitos Planning Commission for 1972. He currently serves as acting chairman of the Rossmoor Highlands Homeowners, as assistant district commissioner, Sunset District, North Orange Council of the Boy Scouts and was manager of the 1971 reserve champion Phillies baseball team in the St. Hedwig's Little League.

In addition, he is a member of the board of directors of the Los Alamitos-Rossmoor Kiwanis Club, Parents Information and Advisory Committee, Lee Elementary School, and the Community Education Council, Los Alamitos Elementary School District.

Mrs. Johnson was publicity chairman last year for the Girl Scouts, a crafts work leader in the Cub Scouts and has prepared wall murals and art projects for the PTA.

The Johnsons have eight children. Four of them are Boy Scouts, two Cub Scouts and one a Girl Scout. Four of the six boys in the family carry paper routes.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Olds 88, 1960, radio, p/s, p/b, $260. 714-637-7667.

Oldsmobile, 1962, 4-dr. sedan, recently painted, auto. trans., p/b, p/s, $300. 213-296-1238.

Barracuda, 1970, 440 c.i., 4-spd. trans., pwr. d/brakes, p/s, posi-traction, FM-AM radio, $2,500. 213-676-3692.

Austin Healey, 1967 Mark 3000, convt., new paint, wire whls., $1,700. 213-939-3387.

Lincoln, 1963 Continental, 53,000 mi., $500. 213-323-9003.

Ford, 1965 Gal. 500, r/h, p/s, a/c, new tires, batt., $850. 213-635-7843.

Javelin 304, 1970, b/seats, r/h, 3-spd. floor shift, p/s, $2,115. 213-851-1376.

Buick, 1968 Wildcat custom, a/c, p/b, p/s, r/h, stereo tape AM-FM, $1,950. 213-757-2690.

Chevrolet, 1966 Malibu, 4-dr., p/b, p/s, auto. trans., r/h, 77,000 mi., $550. 213-372-1546.

Volkswagen Bus, 1968, radio, new tires & clutch, $1,695. 714-962-3112.

Station Wagon, 1960 Chevrolet, $295. 213-374-4235.

Toyota, 1969 Corona DeLuxe, new motor & clutch, $995. 213-325-5441.

Station Wagon, 1963 Chevrolet Impala, a/c, $325. 213-377-6658.

Pickup, 1970 Ford Ranger, w/shell camper, auto. trans., p/s, 41,500 mi., min. bid, $2,045. Credit Union ext. 1117, 5048.

Buick, 1962 Skylark, r/h, a/c, $295. 213-679-5668.

T-Bird, 1955, $1,800. 213-677-8410.

Volkswagen, 1965, $650. 213-327-2831.

Van, 1961 Ford, 289 Cobra eng., inside completely finished, $800. 213-378-9741.

Pontiac, 1962 Bonneville, rebit. eng., $350. 714-892-6862.

Station Wagon, 1966 Ford Fairlane 390, p/s, p/b, a/c, stereo tape, extras, $800. 213-324-1908.

Porsche 1700S, 1960 roadster, '61 trans., $1,500. 213-374-0510.

Mustang, 1967, 6 cyl., 63,000 mi., $995. 213-831-9707.

Monte Carlo, 1970, full power except windows & seats, 35,000 mi., still under warranty, $200 for equity & take over pymts., $2,500 approx. bal. 213-347-4196.

MGB, 1968, o/drive, wire whls., AM-FM radio, $1,200. 213-388-2704.

Mustang, 1967, wrecked, 25,000 mi. on eng., $300 or sell parts. 213-677-0203.

Pickup & camper, Chevrolet, complete or sell separate, $1,500. 213-941-3804.

Corvair, 1961 Monza, 2-dr. cpe., fold-down rear seat, 4-spd. trans., 110 h.p., radio, 67,000 mi., $150. 213-541-1625.

Opel Kaddet Rallye, 1969 1900, $1,325. 213-323-1929.

Miscellaneous For Sale

Couch, green print, coffee table, end table, $50. 213-372-1381.

Bookcase Headboard, maple, king size, antique hardware, $50. 714-830-3048.

Trolley Hoist, 1½-ton, runs on straight or curved 5" I-beam, $95. 213-457-9600.

Hide-A-Bed, w/mattress, $125. 213-675-7673.

Heater, 100 btu forced air, $125. 213-886-2534.

Skis, Head 360's, $95. 213-476-1842.

Bicycles, boy's 5-spd., 22" & girl's stingray, 22", $35. 213-378-4639.

Motorcycle, 1963 Matchless, 750 cc, 8,000 orig. mi., $500. 213-671-1660.

Knitting Machine, Sears Orion, dble. bed, w/instruction book & patterns, seldom used, $200. 213-378-1405.

Amplifier, Fender, 2 15" Lancing spkrs., cabinets approx. 4' high, 2' wide, $200. 213-696-7529.

Motorcycle, 1966 Harley Davidson 74, equipped for funeral escort, $1,000. 213-370-1963.

Organ, mod. 1000 Kimball, 2 mos. old, $2,095 or take over $58.14 mo. pymt. for 46 mos. 213-325-3388, 213-835-1754.

Miscellaneous For Sale

Sewing Machine, Domestic portable, $85. 213-863-3900.

End Tables, 2, Danish walnut, never-mar tops, $15 ea. 213-541-3000.

Glass Doors, sliding, frames & glass, 3-panel OXO 12'x7 5/16", 2-panel XO 9'9¾"x 7'7" 5/16" & 2-panel OX 7'10"x7'7" 5/16", $125 or will sell sep. 213-275-7341.

Pups, Airedale, AKC, papers & shots, $150. 213-831-6533.

Motorcycle, 1969 Honda CL 125, $225. 213-377-5897.

Acreage, off Palmdale-Victorville Hwy., 5 acres, 10% dn., $13,100. 213-430-1952.

Coffee Table, maple, & end table, antique grey, $5 ea. 213-675-6020.

Coat, mink, autumn haze, ¾ length, $295. 213-347-4599.

Lots, lake view, Isabella, 65x165, utilities, $295 dn., $45 mo., $2,995. 213-635-3127.

Guitar, classical, $70. 213-542-7651.

Divan, w/3 lge. chairs, & 3 end tables, limed oak, $200 or sell sep. 213-670-2564.

Engine, 1968 MGB, 1800 cc, & 4-spd. trans., access., $200. 714-531-6160.

Acreage, 2½ acres, fronting on new Adelanto pvt. airport, M-1, $65 dn., $65 mo., $6,500. 213-378-1026.

Lounge Chairs, wrap around, 2, moss green crushed velvet w/matching ottoman, $150. 213-327-2493.

Air Compressor, w/tank, mounted on whls., 1 h.p. motor, $35. 213-324-6484.

Trumpet, York, $25. 213-370-6896.

Trailer, 16' Fire Ball, sleeps 7, self-contained, butane ref., $1,195. 213-699-8173.

Typewriter, Remington portable, case, $25. 213-326-1331.

House, Westminster near McDonnell Douglas, Huntington Bch., 4-bdrm., 2 baths, lge. living rm. & kitch., covered patio, 2½-car gar., forced air heat, bltins, new cpts., landscaped yds., rear yard fenced, 5¾% loan avail., $30,500. 714-897-7372.

Camera, 35mm F1.9 lens 1/500 shutter, coupled range finder, access., $35. 714-535-8232.

Jacuzzi, $150. 213-677-7310.

Acreage, 10 acres, in Apple Valley, near new airport, Silverwood Lake being filled, $15,000. 213-327-3616.

Record Player, McDonald BSR w/base & plastic cover, $40. 213-327-4267.

Commode, 28" square, fruitwood, $75. 213-545-4697.

Mini Bike, Taco, new motor just installed, $75. 213-377-1074.

Typewriter, IBM elec., $165. 213-673-5614.

Chair, lemon yellow, $70. 213-326-0124.

Tape Recorder, Sony TC50 cassette, w/auxiliary pwr. supply, $60. 213-322-1892.

Room Divider, deluxe vinyl accordion-type, complete w/track & locking rail, 13' long, beige, $50. 213-375-3322.

Motorcycle, 1968 Honda 350, $425. 213-328-3383.

Boat, 14' Cal-Built, 25 h.p. Evinrude motor, trailer w/spare whl. & tire, sun top, eng., boat cover, $375. 213-676-7043.

Hardtop, 1963-67, for Corvette, $150. 213-631-3008.

Water Softener, large, Servisoft, $90. 213-379-3300.

Dehumidifier, Westinghouse, used 1 season, $65. 213-545-7149.

Mobile Home, 1971 Fleetwood, 12'x60' expando, awning, carport, complete skirting, at Imperial Beach, $600 dn., $7,200. 714-532-2627.

Motorcycle, 1970 Suzuki, TS90 w/100 cc hop up kit, incl. orig. stock equip., $325. 714-633-0328.

Rifle, .222 cal. Rem. mod. 722 w/3 to 9 pwr. scope, ammo, carrying case, cleaning kit, $100. 714-828-7873.

Weightlifting Sets, 2 Weider & York, 15¢ lb. 213-377-5362.

Desk, $25. 213-672-1090.

Acreage, 40 acres, near Santa Maria, $395 acre. 213-370-3821.

Surfboard & water skis, $75. 213-329-1861.

Wonder Horse, $10. 213-679-5506.

House, 4-bdrm., 2 baths, fam. rm., recent paint, fenced, landscaped, covered patio, new bdrm. cpt. & water htr., P.V. area, $46,900. 213-541-2620.

Piano, upright Hamilton, Chicago by Baldwin, $150. 805-482-5451.

Typewriter, Royal, $30. 213-377-1404.

Wetsuit, skindiver-type, nylon lined, small, $10. 213-833-4191.

Miscellaneous For Sale

Commode, chrome, $15. 213-323-5119.

Stereo Cartridge, Shure M91E, $16. 213-377-7913.

Typewriter, standard upright Royal, $15. 213-324-7259.

Acreage, 2½ acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, $6,500. 714-673-7752.

Air Compressor, portable, gages, pressure control switch, stainless steel tank, approx. 3.5 cu. ft. at 40 lbs., $70. 213-831-4087.

Motorcycle, 1968 Honda CL 90, bored to 106 cc, compl. rebit., $190. 213-377-8815.

Acreage, Antelope Valley, prime Los Angeles County, next to Lake Los Angeles, 5-2½ acres, easy terms, $6,900. 213-376-6205.

Skis, Head 360's, 210 length, w/bindings, $30. 213-534-5707.

Direction Finder, Bendix Navigator 500 batt. powered, $45. 213-454-7338.

Chair & foot stool, maple, $15. 213-376-4831.

Acreage, Antelope Valley, flat, accessible, $275 acre. Box 301.

Tent Trailer, Sherwood 1971, elec. brakes, spare tire & whl., take over bal. approx. $1,400. 213-327-2126.

Washer, G.E. auto., 10 yrs. old, $20. 213-632-7603.

Cemetery Lots, 2, in Rose Hills Memorial Park, near Whittier, $500. 213-377-6460.

Motorcycle, Honda Mini-Trail 50, just o/hauled, $150. 213-378-9614.

Living Room Couch, $40. 213-423-1363.

Motorcycle, 1968 Yamaha, 80 cc, elec. starter, $150. 213-288-6833.

Cabin, modern, furn., Lake Gregory, near lake & stores, terms, $10,000. 213-821-8150.

Boat, aluminum, V-bottom, 12' Starcraft, w/access., $150. 213-596-4215.

Stove, O'Keefe & Merritt, 4-burner, gas, $10. 213-644-9375.

Home, 2-story, new, in horse-zoned area, Newbury Pk., $22,750. 805-498-6356.

Bucket Seats, 2, red, for Corvair, $35. 213-639-7791.

Trumpet, Olds, used 6 mos., 1 yr. old, $100. 213-378-5698.

Motorcycle, 1969 Yamaha 125, less than 500 mi., $350. 213-567-3480.

Home, East Torrance area, 1,100 sq. ft., 3-bdrm., 1¾ bath, cpts., dps., bltins, fenced b/yard, 2-car det. gar., $30,500. 213-320-6388.

Wanted to Buy

Tent Trailer, good condition, under $600. 213-865-5133.

Bicycle, boy's 20", w/training wheels if possible, good condition. 213-675-6397.

Dodge or Plymouth, 383 c.i.d. block, 426 c.i.d. wedge heads & intake manifold. 213-323-4257.

Skates, sidewalk-type for 4 yr. old, size 8 or 9, used. 213-676-3050.

Stenotype Machine. 213-679-8397.

Motorcycle Helmet, Bell Star. 213-645-6211.

Maintenance Manual, B-35, & armament info or manual. Box 302.

Free (To Be Given Away)

Pups, mixed weimeraner, born 1-1-72, male & female. 213-376-6397.

Dog, mixed poodle, champagne color, approx. 1½ yrs. old. 213-542-2128.

Pups, German shepherd, avail. April 15. 213-324-8704.

Rentals Offered

Home, 2-bdrm., 1 bath, furn. or unfurn., No. Inglewood, lge. lot, 2-car gar., $170 mo. 213-756-1812.

Apt, 3-bdrm., 1½ bath, shag cpts., dps., bltins, room for washer & dryer, encl. gar., 2 children allowed, no pets, $225. mo. 213-676-0044, 213-327-1700.

Apts., unfurn., 1 & 2 bdrm., f/place, pool, patio, security, air cond., s/proofed, shag cpts., bltins, from $195-$275 mo. 213-641-9700.

Apt, 2-bdrm., unfurn., oven & range bltin, cpts., dps., pool, 2 blocks from Crenshaw/Pacific Coast Hwy., $160 mo. 213-325-4580.

Cabin, Big Bear City, 2-bdrm., 1 bath, $40. 213-320-6486.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 w/end. 213-326-7232.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn., $35 w/end, $100 wk. 213-823-1788.

House, Bass Lake, $150 wk. 213-374-3702.

NORTHROP SON WINS HONORS

Ted E. Holloway, Jr. the son of Geraldine O'Malley of the Aircraft Division, has been named Honor Agent of the quarter by the Liberty National Life Insurance Co.

Mr. Holloway worked for the Aircraft Division three years prior to his present job. His brothers, Tom and Jerry, were also Aircraft Division employees.

Rentals Offered

Cabin, Lake Arrowhead, family only, $125 wk., $55 w/end. 213-831-1745.

Condominium, at Mammoth Mountain, 1-bdrm., sleeps 5, kitchen & linens supplied, $40 w/end, $60 midwk. 213-785-1405.

Condominium, Palm Springs area, furn., 2-bdrm., heated pool, $100 wk., $60 w/end. 213-327-8994.

Apt, 2-bdrm., unfurn., sub. parking, pool, bltins, custom cpts. & dps., 10 min. to Northrop, $175. 213-670-6084.

Apt, 2-bdrm., unfurn., avail. April 22, bltins, cpts., dps., closed locked gar., storage, pool & patio, near El Camino, $165. 213-324-8373.

Child Care

Child Care offered, my home, daily, El Camino College area. 213-324-8428.

Personals

My deepest gratitude to my friends at Ventura for their kindness at the passing of my husband, Dick. SHIRLEE COMBS.

Dressmaking & alterations, references, reasonable. 213-323-1476.

A sincere thank you to everyone at Northrop that helped in making my recovery as pleasant as possible. DAVID HARDMAN.

Ride Wanted, 8 a.m.-4:42 p.m., Crenshaw & 170 St. to Plant I or Plant II, Aircraft ext. 2647, 213-324-5169.

Thanks to all my friends & NRC for the cards & flowers during my recent illness. ROY EVERSZ.

Our most sincere thanks to all of our friends at Northrop for their many expressions of sympathy, flowers & donations in memory of my husband, Glenn W. Thornton. VIRGINIA THORNTON, DAUGHTERS & ALL OF THE FAMILY.

We wish to express our appreciation to everyone for their kindness & thoughtfulness during the illness & loss of our husband & father. MRS. FRANCES KUCK & SON, TOM.

Ride Wanted, 8 a.m.-4.42 p.m., Western & Plaza Del Amo to Aircraft Div., Aircraft ext. 2164. 213-328-6968.

Ride Wanted, 3:42 p.m.-12:12 a.m., Anza & 190th St., Torrance, to Aircraft Div., Aircraft ext. 2267. 213-371-5410.

The years of work & travel for Northrop were most rewarding; the retirement party & gifts were great; thanks to so many friends for so much. M. S. JOHNSON.

I wish to express my gratitude to all of you with whom I have worked & thanks for my retirement party & gifts. OLIVER LAMB.

I wish to express my gratitude to my friends at Northrop & extend my thanks to all for making my retirement party such a memorable occasion. MARIE MURNANE.

We would like to express our sincere gratitude to all our friends at Northrop for their generous contributions & deep concern in the recent loss of our father, Frank R. Diel. LARRY, GARY, MIKE & DANNY, SONS OF MARY ANN DIEL.

Special thanks to all my friends at Northrop for their kind expressions of sympathy & gift to the American Cancer Society in memory of my sister, Naomi Holland. MARQUA DEGONIA & FAMILY.

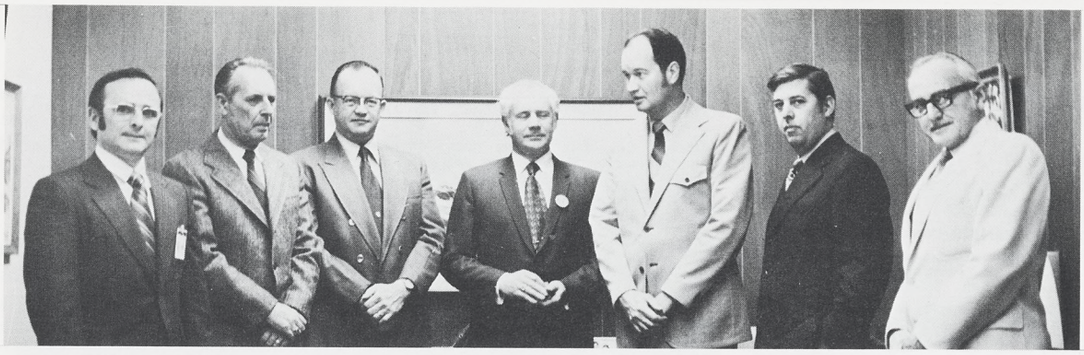
A sincere thank you to my many Northrop friends who remembered me during my recent surgery & convalescence. TED GARVEY.

We wish to extend our hearty appreciation to all for their concern & thoughtfulness during my illness & recovery. HOWIE & BARB WALKER.

For Sale or Trade

Jig Saw, hvy. duty, 18" belt driven, w/motor, steel base, $30 or trade for drill press. 714-637-4723.

Beach Lot, hillside, w/complete plans for residence, in northern Playa del Rey, $18,500 or trade for dn. pymt. on apt. bldg. 213-821-4180.



FIFTY-FIVE YEARS SERVICE was rewarded when Ray Flynn, 15 years, Lloyd Cushman, 20 years, and Eugene Smith, 20 years, received service pin awards from William J. Oakes, center, vice president. Observing the ceremony are Lt. Comdr. Don Blake, USN DSSP, J. W. Jenkins, manager, Eastern Support Operations, and W. B. Buckbee, manager of Ocean Engineering.

Prompt Aid Revives Gulick From Death

"For all practical purposes I died," said John H. Gulick, DCAA at the Electro-Mechanical Division.

And doctors at the Anaheim Memorial Hospital agreed, pronouncing him DOA — dead on arrival — of a cardiac heart arrest.

But although he suffered a complete heart stoppage, Mr. Gulick has now recovered without any permanent damage.

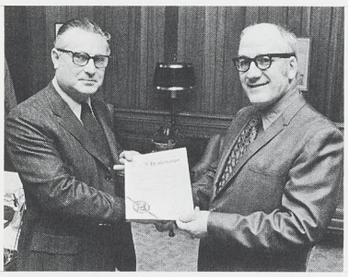
"I am alive today—after having been pronounced clinically dead—because of the ability of Northrop's emergency crew," Mr. Gulick said.

"I came to work early and stopped for a cup of coffee when I suddenly felt weak," he recalled. "I sat down on the floor beside the workbench of Ken Orrick who called Globe Sgt. Larry Pennybaker when I passed out. Sgt. Pennybaker rushed to my aid and was immediately followed by Peck Campbell, Northrop Security office.

"Mr. Campbell had taken instruction in Cardiac Resuscitation from an instructor for the Orange County Heart Association. He knew exactly what to do. He gave me heart massage and oxygen to keep blood flowing to my brain until the ambulance arrived. Later at the hospital my heartbeat was revived by three or four shock treatments.

"Without Mr. Campbell's aid, any later treatment at the hospital would have been useless. After three or four minutes without fresh oxygenated blood the brain is damaged beyond recovery."

Mr. Gulick does not retain any recollection of the time he was considered clinically dead. "There is a blank in my mind from the time I passed out on the floor until I regained consciousness two days later in the hospital," he said. "So I can't say how it feels to be 'dead' but I certainly know how it feels to be alive after being pronounced dead. It's wonderful."



RON SHEFFIELD, left, assistant program manager for Northrop Services, Inc., at the NASA Goddard Spaceflight Center, Greenbelt, Md., assists County Executive W. V. Gullett in proclaiming Engineering Week. Mr. Sheffield is chairman of the Public Affairs Committee of the Maryland Society of Professional Engineers. (P.G. Photo)

LAS VEGAS TRIP

The NRC Las Vegas trip is definitely set for April 14-16, according to Jack Kinzer, travel commissioner. The price will be $35.50 which includes two nights at The Mint and travel by Merri-Mint Greyhound bus. Space is limited. Reservations should be made as soon as possible. Call Personnel Activities.

BLACK HISTORY—Participation

(Continued from page 1)

sion definition of the term 'American Negro'

"It was summarized that the name 'Negro race' was forced upon us. This led white people in America to define it also in terms of parentage which means that everybody having a known trace of Negro blood in his veins —no matter how far back it was acquired—is classified thus as a Negro. From this we conclude that the definition 'Negro race' is thus a social and conventional and not a biological concept."

L. S. Forte, Cost Estimating: "I am a member of the Internationales, a club largely composed of young Black professionals organized to focus our interests on junior high and high school students in Black communities. We are heavily involved in cultural and educational activities, planned largely for evenings and weekends.

"During Black History Week our club sponsored two seminars on Blacks in Theater Arts, held at Kappa House in Los Angeles. Films were shown and various plays by Black authors discussed.

"The Internationales are now in the process of establishing a scholarship fund drive for financially dependent students."

Bob McClure, Finance and Accounting: "Black History Week gives us an opportunity to show our appreciation to our Black brothers and sisters who contributed to history.

"In one of the activities our YMCA had a "Dress Up Day" for children who dressed up as many of the great Black athletes. Some dressed as Willie Mays, Cassius Clay, Wilma Rudolph and other Black greats.

"Black History Week leaves us with this thought in mind: Regardless what color a man or woman's skin is, remember all races can contribute to Black History."

Needy Program Set to Continue

The yearend Needy Family Program, sponsored each year by Finance and Administration, and Finance and Accounting, drew so much support that the two organizations have voted to make it an all-year project, according to R. S. Taylor, controller.

The program was started five years ago to aid five orphan sons of a former Northrop secretary. Last year it was expanded to include a 35-year-old blind woman who cares for two children, one a nine-year-old mentally retarded child, as her only source of income. Also, through arrangements made by Harry Ewing, a contribution was also made to the Long Beach Retarded Children's Foundation.

The Leaders

Board members for the program are Dick Smestad, Manufacturing Cost Control; Donna Clark, Engineering Cost Control; Florence Correll, Cash Management; Bill Lull, Cost Estimating and Pricing; Jim Akoubian, Accounting and Forecasting; Anne Thomas, Cost Information; Rose Russell, Contract Management; and Harry Ewing, Management Systems.

About 140 people are associated with the program which Mr. Taylor says is entirely voluntary and sustained solely by the enthusiasm of the participants.

HARRY EWING shows Anne Thomas bunny-shaped Easter baskets he is selling to aid Long Beach Retarded Children's Foundation.

WEDAA SELECTED

Henry W. Wedaa has been selected for membership on the Committee on Urban Environmental Quality, a standing committee of the League of California Cities.

Mr. Wedaa is project manager of the Electro-Mechanical Division's Ontario Airport Environmental Impact Study and also is mayor of Yorba Linda.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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BRIG. GEN. JOHN S. CHANDLER, director, Defense Contract Administration Services Region, Los Angeles, left, confers with Frank W. Lynch, vice president and general manager, during a recent visit to the Electro-Mechanical Division. During the visit General Chandler was briefed on the Air Force TISEO program and other defense oriented contracts. Col. Richard E. Griffin, commander, DCAS District, Anaheim, accompanied General Chandler.

Northrop to Build Prototype USAF Lightweight Fighter

Northrop has received one of two contracts awarded by the U.S. Air Force for the Lightweight Fighter program.

Value of the Northrop contract is $39,078,715. General Dynamics received the second contract. Northrop's Aircraft Division will build one of two prototypes to determine the feasibility of developing a small, light weight, low cost fighter.

In announcing the award Thomas V. Jones, Northrop president, said, "We know of no other award that has been as meaningful and gratifying to Northrop.

"The prototype concept means that we are wisely turning to the use of a flying vehicle as the best means for truly advancing new design concepts."

The new aircraft, the P-600, will be built by the Aircraft Division.

Anaheim Fireman Praises Response of Division Emergency Crew to Fire

Battalion Chief James Gensler, Anaheim Fire Department, had highest praise for the way the Electro-Mechanical Division's emergency crew and employees handled a recent fire.

The fire, which broke out in an exhaust system at the Anaheim plant, was quickly brought under control and suppressed by the crew before the fire department arrived.

The Anaheim firemen then joined the emergency crew in checking for new outbreaks and in mop-up operations to prevent further water damage.

All employees who assisted in the emergency are to be commended. While all who helped are not known, the following were among them; from Maintenance: Don Schneider, Jack Kinzer, Rene LaFamme, Harold Reck, Frank Stolz, Gene Weber, and Andy Anderson; from Plant Protection: Riley Eledge; and from Transportation: Fred Marek.

Gasich Tells Plans For Future Aircraft

Welko Gasich, vice president and general manager, Aircraft and Ventura Divisions, revealed future operations of the two divisions in a talk to the Electro-Mechanical Division Management Club.

In discussing Ventura, Mr. Gasich said the outlook for the next five years looked good, and that the current year would meet expectations.

Ventura's current product lines include Marine Systems (underwater targets), Aeronautical Systems (remotely controlled drones and the next generation of remotely piloted vehicles), and Aircraft Subassemblies (which includes wing-to-body fairings for the Boeing 747).

Mr. Gasich said Ventura had the best capability in the country for laid up plastics. The division is now making a wide variety of plastic subassemblies for aircraft and is studying the commercial application of marine plastic fabrications.

In the Aircraft Division on-going programs include continuing work on the F-5 Freedom Fighter, completion of two A-9A prototypes for a fly-before-buy competition with Fairchild's A-10A and development of the new F-5E for the Military Assistance Program.

"We expect performance of the F-5E to be excellent," Mr. Gasich said. "And the A-9A, intended for close support of ground troops, is the most invulnerable to ground fire of any aircraft we ever built. It is really rugged."

The F-5E and A-9A are currently being constructed, but coming along in the future are two other aircraft designs to keep Northrop in the forefront of the nation's aerospace industry. They

(See MR. GASICH, page 6)

Hoopsters Place Second in League

The NRC basketball team placed second in the Anaheim Industrial League, winning eight of ten scheduled games, according to Bob McClure, basketball commissioner.

The team competed against hoopsters from Disneyland, Marco-Oak Corp., Textile Rubber and Chemical Co., and Beckman Instruments.

Employees who participated in the season's games were Jim Aiken, Duane Baptiste, Dave Cost, Bob Lawther, Bob McClure, Jerry Reed, Jan Reid, John Rettberg, Ron Revera, and Chuck Young.

The Northrop team consistently places high in the leagues, and has been in the top three for the past five years.

BOB McCLURE PRESENTS basketball trophy to Ed Mosher, president of the NRC Executive Council.

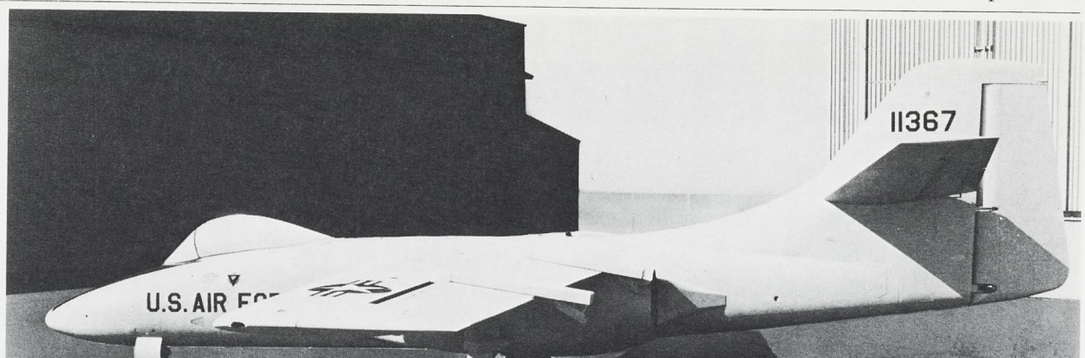
Bond Drive Opens May 8

The Annual Savings Bond Campaign at Northrop will begin May 8, according to Frank Smith, Corporate director of Industrial Relations.

"Savings Bonds now pay 5½ per cent when bonds are held to maturity," Mr. Smith said. "This compares most favorably with bank and savings institution rates since Series E Bonds are exempt from state and local income taxes. Also Federal income taxes may be deferred until the bonds are cashed."

Mr. Smith said that Northrop personnel have always been strong supporters of the Savings Bond Program. "The Northrop campaign this year will be conducted to give those who are not participating, an opportunity to get in on a genuine bargain, and also to provide a chance for those participating who would like to increase their payroll deductions for bonds."

Division bond coordinators and boosters will be appointed in each of the divisions to assist personnel who wish to join the bond program or to increase their bond allotment.



NORTHROP CORPORATION'S A-9A CLOSE AIR SUPPORT PROTOTYPE

A-9A Evaluation Begins Oct. 24

Between Oct. 24 and Dec. 23 prototype aircraft taking part in the Air Force AX specialized close air support flight evaluation will log 123 flying hours.

This information, along with details and specifications involving the prototypes, was contained in initial publicity released this month by the USAF.

Northrop's A-9A and Fairchild Industries' A-10A will compete in the "fly-before-buy" evaluation at Edwards AFB. Each contractor will conduct its own flight test program prior to the official USAF evaluation in flight tests to begin in the late spring.

The 123 flying hours include 54 hours in weapons delivery, 43 for aircraft performance and flying qualities, 20 hours for operational suitability and 6 hours for systems tests.

The flight evaluation effort will be followed by a maintenance demonstration between Dec. 26 and Jan. 2, 1973.

The A-9A developed by Northrop is a high-wing, single-place aircraft powered by two Avco Lycoming Division F-102 engines, each delivering more than 7,000 pounds of thrust. It is 53½ feet long, has a wing span of 58 feet, and is 17 feet high. In the A-9A the pilot sits in a "bathtub of armor" which will provide protection during the close air support mission. The A-9A features foam-filled fuel tanks in the wings well away from ignition sources. All maintenance functions can be performed at ground level on the A-9A.

In addition to the armored cockpit, AX prototype aircraft feature redundant flight controls. Should one of the aircraft's primary hydraulic systems become inoperable, the other will continue to operate. A third manually operated system is available should both hydraulic systems fail. Flight control cables are shielded and run separately from the cockpit to the control surfaces for additional safety.

The A-9A's bubble canopy gives the pilot a 360-degree excellent over the nose visibility to reduce chances of a surprise attack and provide optimum target observation.

Production versions of both aircraft will feature 30mm Gatling type cannons in the nose. Prototypes will be equipped with 20mm Gatling guns for tests.

Colonel James E. Hildebrandt heads the AX System Program Office for the USAF Systems Command's Aeronautical Systems Division.

USAF flight evaluation will be conducted by a joint test team from Tactical Air Command, the using organization, and Systems Command, the developer.

'Gleeble' Aids Research With Welding Processes

An oddly named machine is helping the Aircraft Division's Materials Research Department solve difficult metallurgical problems associated with welding processes, thereby contributing to greater aircraft safety.

"The machine was developed by the staff of the Welding Research Laboratory at Rensselaer Polytechnic Institute to study welding metallurgy," Northrop's K. C. Wu said. "Then they found it would do so many things that there was no name that would fit it. So as a joke someone stuck the name 'Gleeble' on the machine and it has been officially known as a Gleeble since."

The Gleeble consists of a control console and a testing unit. From the console, Mr. Wu can control the heating and cooling of test specimen to simulate a wide variety of welding conditions.

This enables welding metallurgists to develop an appropriate welding parameter.

In one of these units the machine can simulate extrusion of metal, letting a metallurgist optimize the extrusion parameters for a particular alloy in the mill.

The Gleeble can also determine how long metals will stand up to thermal fatigue that is critical in space shuttle applications, and can measure strength and ductility at elevated temperatures. If a designer needs to know how long an alloy will last under service conditions, without losing strength, how hot it can get without melting and how much weight it can support at elevated temperature, the Gleeble can give him the answer with a small specimen. This eliminates the necessity for expensive tests on large-scale mockups.

Since 1964, when the machine went into operation in the Materials Research Lab, it has been used for such widely varying programs as an Air Force contract on metal extrusion simulation, welding of high temperature alloy for aircraft application, and studying problems associated with welding titanium for the SST program.

DAYLIGHT SAVING TIME begins Sunday, April 30, and Pat Schreiner, Ventura, has a problem setting this sundial forward one hour to be on time. The sundial belongs to Mac Pakula and the clocks to S. A. Ashworth.

Northrop Page Dedicates New Headquarters Facility

Northrop Page Communications Engineers, Inc., dedicated new headquarters facilities in this Washington, D.C. suburb March 23 with Virginia Governor Linwood Holton the principal speaker.

The $6 million office building is part of a complex known as Northrop Page Technology Park. It houses Page's headquarters as well as those of another Northrop subsidiary, Northrop Airport Development Corporation.

Speaking at the dedication ceremony were the governor; J. A. Waldschmitt, president of Page and one of the five communicators who founded the firm in 1947, and F.W. Lloyd, Northrop senior vice president, representing President Thomas V. Jones.

Mr. Waldschmitt told the assembled Page employees that the building and its surrounding grounds were "the result of your hard work," and extended his gratitude to all of them. He thanked Vienna and Virginia officials for their "warm welcome to your fine State of Virginia."

Governor Holton called Page "an organization that is helping people keep in touch" through its worldwide communications activities. The governor, who takes pride in the new business attracted to Virginia during his administration, slipped in an oblique invitation to Northrop to bring its corporate headquarters to Vienna, as well.

"Northrop Page is here," he remarked. "Where's Northrop?"

Mr. Lloyd said the new facility reflects company policy of investing assets in facilities and equipment "that will result in our doing the best job for our customer." He extended to Governor Holton a personal invitation from Mr. Jones to visit California, stating that if Virginia ranks as the "first" state then California runs a close second.

Page and NADC formerly were located in the District of Columbia, in a building just north of the Georgetown section.

DEDICATING NEW NORTHROP PAGE FACILITY
J. A. Waldschmitt, left, Governor Linwood Holton, F. W. Lloyd.

Rome Office Manager Is Veteran Pilot, Executive

Oddone Colonna, manager of Northrop International's liaison field office in Rome, has been directly associated with aircraft, electronics and communications in his native Italy for well over three decades.

His long career has included service as a military and civilian pilot and extensive background in the development and sales of many types of systems and equipment.

Mr. Colonna is typical of men who serve Northrop at widely scattered points around the globe, supporting all company business elements and activities.

Second in a Series

Mr. Colonna assumed his present post in 1966 after serving as a Northrop consultant from 1959 to 1966.

A graduate of the Italian Air Force Academy, Mr. Colonna spent World War II as a fighter pilot.

On Easter Sunday in 1945 he took part in the final aerial combat sortie before the fall of Italy. It led to his becoming a "pen pal" of nine Americans and a pair of unusual reunions.

As leader of a flight of four Messerschmitt ME-109s, Mr. Colonna attacked a U.S. Army Air Corps B-24 bomber over Switzerland. The bomber fell in flames, but the nine crew members parachuted to safety. Despite nine shell holes in one wing, Mr. Colonna returned to his base where he met, briefly, the B-24 pilot and two other crew members who were being interrogated.

In 1962 Mr. Colonna obtained the names and addresses of the crew members and started a letter writing exchange that continues today. A year later he held a reunion with the pilot, General Electric's W.L. "Todd" Sutton, in New Orleans. Two years ago, Mr. Sutton and his wife visited Mr. Colonna and his family in Rome.

After the war, Mr. Colonna became an instructor pilot for two commercial aircraft firms, then returned to active duty from 1950 to 1956. His duties included a tour as aide to Maj. Gen. D. Schlatter, USAF, commander of the Allied Air Forces Southern Europe.

ODDONE COLONNA

THEIR WORK DECORATES NCL WORK AREA
Reg Allen, left, Erna Dillard and Larry Churchill, artists.

Artist Trio Helps Brighten NCL Office

Three talented Northrop Corporate Laboratories employees are pooling their artistic talent to help brighten a busy Information Sciences office area.

The three—Erna Dillard, Reg Allen and Larry Churchill—bring in their art work for display on a rotating basis.

Reg, an engineer, turned to painting as a hobby about a year ago upon completion of a semester of art study at El Camino in Woodland Hills. He works in oils and prefers landscapes of typical Southern California origin. He may sketch a scene for painting later or work from photographs. His wife, Joy, shares his interest in painting as a hobby.

Larry, a program administrator, specializes in metal sculpture, turning out his art forms in a shop set up in his garage. Over the past three years he has turned out "20 or 30" pieces, ranging from a full-scale bridge to birds and animals. Larry's friends receive most of his work as gifts.

Erna is a technical specialist who favors oil and water color painting. She has attended a number of classes in Simi Valley. She paints still life, but really favors alpine scenery, much of it painted from memory of happy years spent in the Alps of Europe. Erna's mother and son share her interest in painting.

Barbara Jones was the originator of the idea of using walls in the office area as an art gallery. She helps arrange the paintings and encourages the artists to rotate their works from time to time.

Shearer Recalls Therapy Work on P-61 Black Widows

A forgotten chapter in Northrop history came to light when the Electro-Mechanical Division's Bert Shearer, recently celebrating his "official" 25 years with the company, recalled his "pre-start" with Northrop two years before this.

Before Mr. Shearer joined Northrop as a regular employee in 1946, he spent a year working part time from a wheelchair and crutches in a Van Nuys hospital ward assembling parts for the Black Widow P-61 night fighter Northrop was building for the U.S. Air Force.

"When manpower was so critical during World War II, Jack Northrop got the idea of utilizing ambulatory patients in Army hospitals," Mr. Shearer recalled. "Many of these needed work therapy as part of their treatment."

A plan was worked out with the Army's Birmingham General Hospital in Van Nuys. Patients needing work therapy who wished to volunteer could work up to two hours a day on subassembly work, and would be paid regular hourly wages.

Northrop set up a shop in one wing of the hospital. Work benches, equipment, and a foreman and leadman were brought from Hawthorne. As many as 50 soldier-patients took advantage of the opportunity to work in the shop. In addition, others confined to their beds were utilized in assembling small parts.

Mr. Shearer was wounded at Anzio in the Italian campaign. He was sent back to the Van Nuys hospital because it was near his home. When he first volunteered for the Northrop work-therapy program he was in a wheelchair, but later he graduated to crutches.

"We had no formal training in assembly," he recalled. "A foreman and leadman told us what to do and then checked our work. My work was assembly of throttle quadrants.

"It was a wonderful program. It gave us something to do and kept us from getting bored. At the same time we felt we were making a definite contribution to the war effort for the P-61 was directly responsible for ending night raids by German aircraft. And, of course, the extra pay helped too."

Mr. Shearer worked with the program part time until his discharge from the hospital in 1945.

REUNION SET

The annual get-together of all retired Northrop employees will be held May 17 at the Western Avenue Golf Course Clubhouse, 1930 - 120th St.

Retirement Club reunion activities get under way with a social hour at 3 p.m. followed by dinner at 6 p.m.

Reservations should be made through Personnel Activities by May 10. The cost: $3.50 per person.

BEAR COUNTRY
Now at Disneyland.

NRC Slates Big Disneyland Night For Family Fun

An all-new "Bear Country" will be among the more than 50 attractions available to Northrop families May 20 when NRC sponsors its annual "Night at Disneyland."

Tickets for this event are now available through all NRC ticket outlets at all divisions and facilities.

The $4 per person tab includes admission to the park and unlimited use of all facilities and attractions, excluding shooting galleries, throughout the evening.

All of Disneyland will be reserved for the exclusive use of Northrop families from 8:30 p.m. until 1:30 a.m.

THESE STITCHES TOOK TIME
Dolores Watson shows prize-winning needlecraft article.

Negative Knit Notion Is Thing of Past for Dolores

Dolores Watson spent half her life telling herself she couldn't knit. Then when she finally did knit she won all three first prizes at an arts and crafts show in Huntington Park.

Her entries included a white one-piece dress made with a complicated fisherman's knit stitch, a one-piece dress and jacket of her own design, a man's sweater, a two-piece suit, and an afghan.

Mrs. Watson first learned the rudiments of knitting as a 10-year-old girl attending a YWCA "Home Camp." The instructors taught her to knit in horizontal lines, but then they would always complete the difficult turns which required diminishing stitches.

"They said this was too difficult for us and I got the idea that I could never knit," Mrs. Watson said.

Took Lessons

Then about seven years ago she happened to pass a knit shop where a group of women were taking lessons. "They were struggling so hard that I felt I could do as well as they," she said. "So I began taking lessons and found I had been wrong all these years. Knitting is really simple. Anyone can knit if you concentrate."

Soon she had progressed to the point where she was knitting entire ensembles, using complicated stitches and unusual materials. On one of her recent knit dresses she worked about eight hours for each inch of dress length due to the complexity of the pattern stitch. Such a dress is worth several hundred dollars just in labor alone, if she should cost account her time.

Another recent project she knitted was a dress with metallic strands woven into the skeins of wool she used. Another was an unusual set of bathroom curtains. These were knitted with jumbo needles measuring one and one-half inches in diameter in order to achieve an open work effect. Heavy velvet yarn was used for the material.

Despite the prizes she has won and the extraordinary articles she has made, Mrs. Watson is proudest of her accomplishments in persuading some of her friends and neighbors to take up knitting.

Easy to Knit

"I could identify with them," she said. "They thought knitting was too hard. This is wrong. Anyone can knit and knit well if they will just apply themselves."

After mastering the rudiments of knitting it is natural to want to progress to the more intricate stitches and more difficult patterns. Knitting becomes more exciting all the time and each difficult pattern stitch holds great fascination. To Mrs. Watson the patterns become a picture as they are knitted, much like an oil painting comes to life through the hands of the artist. One of her greatest rewards in knitting is the creativity and perfection that she can accomplish through the intricate stitches.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Volkswagen, 1968 squareback, radio, $1,250. 213-375-9397, 213-375-2091.

Jaguar XKE, 1963 coupe, chrome wide whls., Pirelli tires, extras, $1,500. 805-482-5451.

Fiat 850, 1969 sport cpe., new batt., clutch, valves & brakes, $950. 213-457-9600.

Jeep, 1966 CJ-5A, canvas top, roll & tow bar, $1,500. 213-374-0510.

Power Wagon, 1960 Dodge, 4x4, winch, extra gas, rblt. eng. & transfer case, $1,500. 805-497-2823.

Maverick, 1970, big 6, r/h, 22,000 mi., $1,500. 213-625-1020.

Volkswagen 1300, 1966, radio, new tires, clutch, $595. 213-596-0433.

Volkswagen Bus, 1965, Porsche powered, wood panelled, $995. 213-821-4180.

Cadillac, 1968 convt., $2,900. 213-754-3903, 213-779-6805.

Ford, 1963 Gal. 500, r/h, p/s, p/b, motor & radiator rebilt., $400. 213-378-4676.

Oldsmobile, 1961 88, 2-dr., $175. 213-842-8724.

Race Car, G production Triumph Spitfire, ideal for new SCCA drivers, $1,100. 213-832-3852.

Karmann Ghia, 1961 w/remanufactured eng., stick shift, r/h, $299. 213-889-0191.

Datsun, 1967, 4-spd., r/h, just o/hauled, $375. 213-676-5141.

Volkswagen, 1969, r/h, 28,000 mi., $1,295. 213-326-7084.

Ford, 1965, a/c, p/s, new auto. trans., $500. 714-595-3398.

Mercury, 1970 Cougar XR7, a/c, p/s, p/b, p/w, htr., AM radio, 8-track stereo tape deck, less than 19,000 mi., $2,995. 213-325-3257.

Station Wagon, 1964 Olds, 9-pass., p/s, p/b, fact. air, $395. 213-860-6959.

Chevelle Malibu, 1966, 2-dr., auto., V-8, r/h, $700. 213-670-3713.

Chrysler, 1963 convt., full power, air, auto. pilot, 60,000 mi., $450. 213-375-6773.

Renault R10, 1968, $650. 213-831-5304.

Ford, 1963 fastback, 2-dr., new paint, tuck & roll int., $475. 213-329-6174.

Chevrolet, 1968 Impala, 2-dr., new tires, auto. trans., p/s, p/b, a/c, $900. 213-374-0664.

Fiat, 1961 1500 convt., dual ovhd. cam eng., r/h, 4-spd. trans., $550. 213-675-1354.

Opel Kadett, 1969 Sports Rallye, fully equipped, $1,150. 213-377-2657.

Miscellaneous For Sale

Tape Recorder, stereo, 1970 Panasonic, spkrs. enc., 2 mics., 4 heads, $175. Box 401.

Boat, 15′ fiberglass, 35 h.p. Evinrude motor, trailer, $525. 213-833-9546.

Poodle, black male, miniature, 3 mos. old, AKC, $60. 213-320-0363.

Bicycle, man's, 10-spd. & handbrakes, English make, $35. 213-674-9627.

Trailer, small flatbed, $35. 213-671-0357.

Starcraft, 1971, 14′ fiberglass hull, 1969 Mercury 65 h.p. eng., 1971 little dude trailer, $1,700. 213-324-2471.

Sofa, French Provincial, 2 marble topped tables, lamp, $100. 213-644-2175.

Sofa, 8′, $125. 213-676-5770.

Great Books of the Western World, vols. 1-54, $150. 213-675-6233.

Sailboat, 15′ Glen L, trailer, cover, $700. 213-963-5524.

Snow Tires, 2, mounted, & rims, 8.25x14, $5. 213-325-3675.

Wedding Dress, lace, size 14, $35. 213-329-7214.

Rifle, Weatherby .300 magnum, Kahle 4X scope, Redfield mounts, $300. 213-375-6071.

Tent, 9x12, Wards, ext. alum. pole, $30. 805-498-2787.

Lot, 60x100 in Tahoe Paradise, 4 miles from South Shores Casinos, $7,000. 213-329-4762.

Chairs, 2 uphol., brown & tan, $25 ea. 213-678-1446.

Pole Lamp, brass, w/3 crystal round hanging globes, $5. 714-830-3048.

Miscellaneous For Sale

Turntable, Garrard, Harmon-Kardon tuner/amplifier, stereo tape deck, in 6′ oiled walnut Barzalay cabinet, $100 or will sell sep. 213-275-7341.

Rug, varigated blue & green, all wool, 5½x9, $50. 213-327-2493.

Water Bed, ¾ size, & frame, $30. 213-675-6020.

Camera, Yashica Lynz 5000, f-1.8 lens, bltin elec. eye, case, $50. 213-851-1376.

Piano, upright, modern style, walnut covered finish, $200. 213-696-7529.

Pictures, 9, antique orig. water color, Oriental, 3 in set, $130. 213-326-0124.

Pool Table, 3½′ x 7′, $40. 213-423-1363.

Crib, Edison, white, mattress incl., $20. 213-679-5506.

Pistol, Luger, 9mm, all matching nos., reblued, $125. 213-375-4312.

Engine, 396 C.I.D. Lincoln, 100 mi. since complete o/haul, access. & trans. avail., $450. 213-676-3095.

End Tables, 2, Danish walnut, never-mar finish, 26″ sq., $15 ea. 213-541-3000.

Motorcycle, 1971 step-thru Honda 70, elec. starter, extras, $150. 213-831-3737.

Rims, set of 4, std., for Camaro & 4 wheel covers, 2 7.35x14 tires, $29 or sell sep. 213-323-8797.

Camera, Mamiya 16 auto., bltin photocell, 4x1¾x1¼″, weight 10 oz., $55. 805-492-1633.

Desk Chair, exec., swivel, arms, high back, black leather uphol., $60. 213-675-6668.

Fish Tank, 15 gal. & 10 gal., wrought iron stand, $50. 213-926-5331.

Acreage, 2½ acres, Antelope Valley, water & elec. to prop. corner, $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

House Trailer, 1968 Field & Stream, 15′, $795. 213-374-7291.

Lot, 52 x 110, view, huge trees, walk Lake Gregory, San Moritz Club, Crestline, terms, $3,950. 213-377-1074.

Motorcycle, 1969 Honda CL-125, $225. 213-377-5897.

Occasional Chairs, 2 matched, custom, coral & gold, $35. 213-670-2564.

Typewriter, Royal portable, script print, $20. 213-541-2710.

TV, Sears Silvertone, 21″, color, table mod., $200. 213-832-3857.

House, 2-story, 4-bdrm., 2 baths, f/place, bltins, cpts., dps., G.I.-FHA conv. financing avail., Cerritos area, $32,500. 213-860-3022.

Hair Dryer, Kenmore, stand type, $15. 213-370-6896.

Refrigerator, G.E., freezer drwr. on bottom, $85. 213-675-5258.

Bird Cages, 48x24x31, 48x21x55, $10 ea. 213-373-3386.

Table Lamp, Early American w/dec. custom shade, $20. 213-325-5245.

Motorcycle, 1971 Harley Davidson, 74 cu. in., 8,500 mi., $2,300. 213-324-8437.

Piano, spinet, w/bench, mahogany, $325. 213-530-0765.

Stereo System, Heathkit SD-1, stereo FM tuner, phono, spkrs., cabinets, $85. 213-846-5589.

Ski Boots, men's 9½ & stretch pants, German made, $20. 213-324-1908.

Utility Trailer, 4′ x 7′ bed, $35. 213-326-6214.

Flute, Bettoney, $100. 213-865-5084.

Bed, dble., w/headboard, walnut, $35, other misc. items. 213-641-0683.

Doors, 6, used, int., painted, 4 are 30″ wide, $5. 213-675-8813.

TV, Zenith color console, 8 yrs. old, $50. 213-327-4585.

Motorcycle, 1971 Yamaha mini-Enduro, 60 cc, exp. chamber, $245. 714-528-8582.

Couch, 8′, Danish, $80. 213-376-8372.

Ham Equipment, tubes, pr., 4CX250B, $10, other items. 714-639-4438.

Outboard Motor, 5 h.p., Elgin, $60. 213-755-6118.

Piano, console, 5 yrs. old, 77 keyboard, $300. 213-323-0474.

Accordion, Universal, 120 bass, $100. 714-842-4283.

Hide-A-Bed, Early American, gold naugahyde, $135. 213-329-1565.

Sail Boat, 16′2″ Fire Ball, trailer, Dacron sails, extras, $800. 714-893-0414.

Dryer, G.E., 1½ yrs. old, $75. 213-373-4336.

House, 3-bdrm., 1¾ baths, family rm., f/place, bltins, Torrance West High area, $37,900. 213-370-1891.

Motorcycle, 1969 Honda SL 90, 2,000 mi., $210. 213-596-2039.

Miscellaneous For Sale

Dishwasher, G.E. portable Mobile Maid, 8 yrs. old, needs light repair, $25. 213-867-1651.

Outboard Motor, British Seagull, mod. 40, featherweight, 2 h.p., used 10 hrs., w/case, $100. 213-645-7931.

Stereo, walnut console, Telefunken, tape recorder, $425. 213-675-7673.

Crib, w/mattress, white, drop sides, $22.50. 213-376-4831.

Houseboat, 1969 mod., 38′, twin eng., ocean-going, $15,500. 213-320-3583.

Swim Fins, Duck Feet, 2 prs., lge. size, $3 pr. 213-675-2005.

Washer, G.E., $25. 213-329-2330.

Typewriter, IBM elec., $165. 213-673-5614.

Pup, Dalmation, AKC reg., female, 4 mos. old, $50. 213-676-6187.

Encyclopedia, 15 vol. 1881, $40, many other antiques. 213-474-5726.

Iguana, 3 6″ long, lge. cage & access., $25. 213-644-2487.

Crib-Playpen, collapsible, $7. 213-645-7972.

Glassware, depression, & old dolls, 50¢ & up. 213-670-7940.

Bucket Seats, 2 deluxe Ford van, seatbelts & holders, $40. 213-371-2948.

Bicycle, boy's 20″ Stingray, $20. 213-833-7722.

Motorcycle, 1967 Triumph, 650 cc, recently rebilt., $800. 213-323-9003.

Roaster Oven, Westinghouse, lge. size, $10. 213-329-6748.

TV, Magnavox, color, 24″ screen, console-type, $299. 213-939-4213.

Motorcycle, 1966 Honda, CL160, dirt tire & gear, $225. 213-645-8004.

Camping Trailer, 13′ 1965 Cardinal, stove, ice box, sleeps 5, $595. 714-828-2815.

Motorcycle, 1970 Honda CT 70, $195. 714-635-2539.

Camper, 1971 11′ Week-N-Der, fwd. kit., dble. sink, stove, 3-way refrig., queen cabover bed, 8′x14′ patio, many extras, accept shell w/cargo dr. as part pymt., $1,995. 213-943-1031.

Typewriter, Underwood Master, $30. 213-677-7421.

Home, 3-bdrm., 1¾ bath, fam. rm. & P.V. f/place, h/wood flrs., det. dble. gar., fenced yd., 2 miles from Aircraft Div., $31,900. 213-327-2279.

Boat, 14′ glass o/wood, steering & controls, steel trailer, 25 h.p. Mercury, $400. 213-896-7849.

Wanted to Buy

Railroad Ties, 8 to 10, reasonable price. 714-633-5826.

Hide-A-Bed, dble. size, pref. Simmons. 213-676-6298.

Oldsmobile, 1954, good condition. 213-377-5362.

Speakers, 2, in sep. encls. for stereo system. 213-242-9723.

Code Machine, key cutting type, locksmith tools & supplies. 213-645-1489.

Lawn Mower, reel-type, power. 213-372-7270.

Truck Manual, 1960 Chevrolet. 213-378-3017.

Camera, late model Hasselblad, w/ or w/out access. or Rolleiflex, call collect. 805-948-1251.

Volkswagen, squareback, 1971 or 1972. 213-323-6039.

Free (To Be Given Away)

Dog, female, beagle/dachshund comb., loves adults but not children, 213-644-3957.

Kittens. 213-635-7942.

Rentals Offered

Apts, new shag cpts. & dps., pool, gars., single furn., $130, 1-bdrm. unfurn. $135, $155 furn. Box 402.

Apt, unfurn. 1 & 2 bdrm., f/place, patio, aircond., shag cpts., FM music, s/proofed, bltins., 3-way mirrors, lath & plaster, from $175-$235 mo. 213-641-9700.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only $125 wk., $50 w/end. 213-326-7232.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn. incl. linens, $35 w/end, $100 wk. 213-823-1788.

House, Bass Lake, $150 wk. 213-374-3702.

Cabin, Big Bear Lake, 2-bdrm., 1 bath, sleeps 8, f/place, furn., 5 acres of b/yard, $100 wk., $45 w/end. 213-325-8267.

Cabin, Big Bear City, 2-bdrm., 1 bath, $40. 213-320-6486.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40 w/end, $70-$90 wk., 213-868-8040.

ICE CAPADES

Time is running out for the purchase of discount tickets to the Sunday (April 23) 5 p.m. performance of Ice Capades at the Los Angeles Sports Arena.

NRC has obtained a block of 500 "best in the house" seats normally selling for $5 each. Employees may buy them at regular ticket outlets for just $3.50 each.

Rentals Offered

Apts, Redondo Bch., 1 mo. free rent, 3 blks. to ocean, 1-bdrm. $145, 3-bdrm., 2-bath $220. 213-372-2348.

Cabin, Lake Arrowhead, no. shore, 200 ft. from lake, pvt. dock, $125 1 wk., $200 2 wks. 213-375-2255.

Cabin, Lake Arrowhead, family only, $55 w/end, $125 wk. 213-831-1745.

Camper, 11′ 1971 pickup, sleeps 6, $100 wk. & 5¢ mi. 714-544-0773.

Apt, 2-bdrm., no stairs, unfurn., bltins, cpts., dps., pool, 2 blocks from Crenshaw/Pacific Coast Hwy., $160 mo. 213-325-4580.

Cabin, Arrowhead & Running Springs, sleeps 4-5, $30 w/end. 213-370-7105.

Apt, 2-bdrm., unfurn., d/stairs, locked gar., cpt., dps., bltins., lge. pool & patio, near El Camino, adults, $165. 213-329-5986.

Condominium, 2-bdrm., Palm Springs area, furn., heated pool, $100 wk., $60 w/end. 213-327-8994.

Child Care

Childcare offered, my home, weekdays. 213-865-7594.

Personals

Thanks to the members of Northrop who were so generous & for the flowers at the passing of our wife & mother. BARBARA, ROD & HARP SMITH.

I would like to thank all of you for thinking of me during my recent hospitalization & recovery. CHRISTINE LUCERO.

Will pay 10% int. on 2nd trust deed for $2,400, good so. Redondo property, 5 yr. term. 213-375-5009.

Ride Wanted, 7 a.m. to 3:45 p.m., from 3rd & Hauser vicinity, Los Angeles, to Plant I. Aircraft ext. 4358, 213-933-6449.

We wish to express our sincere appreciation for the kind expressions of sympathy regarding the recent passing of our mother. JOHN & LORRAINE SADOWSKI.

I would like to extend our deepest gratitude to our friends at Northrop for their donations of blood & expressions of concern during the illness of my sister. KAY & ED MELENDY.

We would like to express our sincere thanks to all our friends of Electronics P.V. & NRC for the kind thoughts, deeds & flowers during the recent illness & passing of Beryl B. Jackson, beloved wife & mother. BILL JACKSON, HERBERT JACKSON, MRS. JOYCE YODER, MRS. STEPHANIE STARKE.

Thanks to all my friends at Northrop for the wonderful retirement party. Bernie & I will always cherish the memory of being with so many wonderful & thoughtful people who embarked us on our new journey of life. A. H. ANDERSON.

I wish to express my gratitude & thanks to all my friends at Northrop for helping to make my retirement a happy one. BEULAH KUSEL.

I would like to thank my friends for the party & for making my retirement even more pleasurable than anticipated. CARL WHITAKER.

Thank you all. Your gifts, the dinner & interest will always be a treasure. DAVE TRIMBLE.

To all our friends at Northrop, thank you for your thoughtfulness & kind expressions of sympathy at a time when it was deeply appreciated, with the loss of my wife, Mickie. JIM POWERS & SONS.

We wish to extend our appreciation to all for their concern & thoughtfulness during my illness & recovery. LEE & AL BINDER.

For Sale or Trade

Chevrolet, 1968 Nova SS350, 4-spd., positraction, mags, many extras, $1,650 or trade for pickup or van. 213-328-3383.

Lot, duplex, in Lake Havasu City, $9,700, 6% int. or trade $4,500 equity for equal equity in mobile home lot or car. 213-323-7877.

Achievers Win Awards For TOPCO Activities

TOPCO, the Junior Achievement company counseled by the Electro-Mechanical Division, is a finalist in the contest for Junior Achievement Company of the Year.

Junior Achievement is a program in which high school students organize a company, sell stock in it for financing, and then manufacture and sell a product to make a profit or loss. Major industrial companies provide counselers for the students. Northrop has participated in the program for the past 10 years.

In addition to being a finalist in the company competition, Junior Achievers Charles Dawson, Steve Jolitz, Bernie Parsons and Lee Rose won awards for making sales in excess of $100.

Also, Steve Jolitz, with sales exceeding $300 was a close runner-up for the Salesman of the Year Award, and received the Junior Executive Award.

Northrop personnel serving as advisors to TOPCO are Ray Ebbert, managment; Betty Duba, production; Harry George, sales; Dudley Hosea, finance; and Bob Boostrom, coordinator.

TWILIGHT GOLF

The Twilight Golf League resumes play on May 4, according to Vito De Paul, NRC Golf commissioner.

Play is set for Alta Vista Country Club on Thursday evenings. There is still time to join one of the foursomes. Call Mr. De Paul at ext. 443 or Special Activities at ext. 244.

NORTHROP CAROLINA's Plant Manager Bob Jones, foreground, and employees Johnny Redmond, left, and Milo Griffin, right, are shown through the Buncombe County drugmobile by deputy sheriff Bill Sinnes. The drugmobile is an educational exhibit organized to visit schools and industrial plants to acquaint citizens with the growing menace of drug abuse. Northrop Carolina, located in Ashville, N.C., is a unit of the Electro-Mechanical Division.

AN EXHIBIT showing the Electro-Mechanical Division's activities in environmental systems and Navy rescue submarine operations has been on display in Anaheim during March and April. Here Gene Jessick, who arranged for the exhibit as part of the division's community relations program, is explaining the division's work to Willard D. Morris, vice president and manager of United California Bank, Anaheim main office, and Charles F. Lehman, assistant manager. The exhibit was first displayed in their bank. Later it was shown at Crocker National Bank, Orangefair Branch, through the courtesy of J. M. Henneman, manager, and Security Pacific Bank, West Lincoln, through the courtesy of Arnold Sundali, vice president and manager. Other displays of the informative exhibit are being planned.

ESTHER JONES, Industrial nurse, checks safety glasses for John Kaster.

Northrop Safety Program Matches New Health Act

Making the new Federal Occupational Safety and Health Act (OSHA) succeed is everybody's business, according to Safety Administrator Al Van Der Most.

"While Northrop has always had a progressive and effective occupational safety and health program, OSHA now requires all companies to provide safe and healthful working conditions for their employees," Mr. Van Der Most said.

"However, the safest possible working conditions may become ineffective unless each employee rigidly observes prescribed safety rules and operating guidelines for his work environment," he added.

While all rules are important, the one requiring employees to wear suitable eye and face protection to protect against flying objects, glare, chemicals and injurious radiation deserves special mention, he said.

Mr. Van Der Most noted that the Food and Drug Administration has required impact-resistant lenses in all eyeglasses and sunglasses sold since the beginning of 1972, but indicated that OSHA re-affirms Northrop's long-standing policy of requiring that eye protection for industrial exposures be manufactured to much more rigid standards.

Corrective prescription eyeglasses meeting OSHA standards require that each impact resistant glass lens pass the "drop ball test." A one-inch steel ball is dropped on the lens from a height of 50 inches. The lens must withstand the impact without breaking. All such lenses must be marked with the manufacturer's monogram. Frames must also be designed for industrial exposure and bear a trademark identifying the manufacturer on both fronts and temples.

Scratched or pitted lenses, he cautioned, can seriously reduce protection and should be replaced immediately. The proper selection of eye and face protection for specific exposures can be found in SPP 10-4. Verification of fit and function may be arranged through the Medical Unit.

...Mr. Gasich

(Continued from page 1)

are the P-530, and the Lightweight Fighter.

Northrop's work with the Boeing 747 will continue at the present rate, Mr. Gasich said. He pointed out that Northrop had delivered 195 shipsets to date and that all deliveries had been 100 per cent on time.

In conclusion, Mr. Gasich praised the contributions that the Electro-Mechanical Division had made to Aircraft Division programs, and said, "We hope to continue co-production with the Electro - Mechanical Division on our future aircraft programs."

Spring Dance

NRC's traditional Spring Dance is set for Saturday, May 6, according to Roy Steinestel, special events chairman.

The festivities begin at 9 p.m. and will go on until one, with dancing to the music of the Tune Toppers. Price is $2 per person.

GAFFORD SPEAKS

Dr. Robert D. Gafford, Environmental Systems, was guest speaker for the American Management Assn. meeting in San Francisco April 17. Dr. Gafford spoke on "Organizing and Coordinating Technical Disciplines."

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 5 | May 1972

GETTING READY FOR CHRISTMAS (three years hence) are members of the NRC Horticulture Club who chose Arbor Day, March 11, to plant 1,000 seedlings which they hope will grow big enough to harvest by Christmas 1975. The trees, planted in unused ground adjoining the Riverside Freeway at the Anaheim plant, are both a club project to sell Christmas trees to employees and as plant beautification. The seedlings were obtained from the State Department of Forestry. Planters are, rear, standing from left, Jack Lahn, Jim Auest, Joe Saline and Julian Bloom. Front, Peggy Lambert, Sefie Garcia, Tony Dixon, Barbara Hughes and Mid Williams.

Machine Down-Time Will Be Cut by In-Plant Office Equipment Service

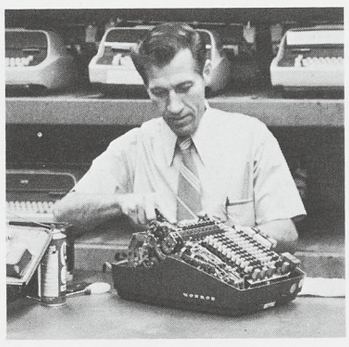
An in-plant office machine repair shop has been opened to provide faster service to the division, according to Merrill E. Skilling, plant engineer.

The new shop is located in building Y-40 and is staffed by Doug Barnes, who has had many years of experience in servicing office machines.

Mr. Skilling said that opening the in-plant shop would reduce down-time on division office machines. This will not only save time lost while waiting for repair, but would also result in about $12,000 in annual vendor savings.

Previously, calls to outside repair services resulted in delays of from two hours to two days.

The division has about 200 typewriters and 300-plus adding machines, calculators and reproduction machines.



DOUG BARNES

JESSICK TO CHAIR LOCAL COMMITTEE

Gene Jessick, manager of Security and Plant Protection, has been appointed chairman of the Crime Prevention Committee of the Anaheim Chamber of Commerce for 1972.

The committee is composed of city businessmen who contribute their services to the community.

Mr. Jessick said that the committee's current project is preparation of a brochure to tell homeowners how to decrease the chances of burglary, and other crimes where the homeowner is victimized.

"Residential burglary is on the rise," Mr. Jessick said. "In recent weeks at least two of our own employees have been hit hard by burglars. There is a lot that homeowners can do to lessen burglary losses and making homeowners aware of this is a major objective of our committee."

Five Receive Patent Awards for Analyzer

Five Electro-Mechanical Division engineers received patent awards for a Diesel Engine Analyzer. They are Lyle Rennick, Dan Almich, Bill Mitchell, Ron Weiss and J. D. Shore.

The award was made under the Northrop Patent Award Program which recognizes company inventors whose ideas are selected for patent applications.

The analyzer was developed around a basic concept and circuit design conceived by Mr. Rennick. The co-inventors collaborated to define diagnostic needs and to establish designs to solve these needs.

The analyzer is designed to provide a rapid and simple means of detecting malfunctions in diesel engines. It could eliminate present costly and time-consuming methods which often involve disassembly and physical inspection of engine parts.

The analyzer employs both ultrasonic sound detection and mechanically sensed accelerations. Through the use of these high frequency sounds and accelera-

(See PATENT, page 6)

HIP Program Graduates 126

One hundred twenty-six students from eight Los Angeles high schools were graduated from the High School Involvement Program — HIP — at Northrop's Aircraft Division.

HIP is a joint effort of Northrop and the Los Angeles, El Rancho and Compton school districts. Students attended classes at Northrop one night a week for 25 weeks to develop employable skills, experience and self-confidence.

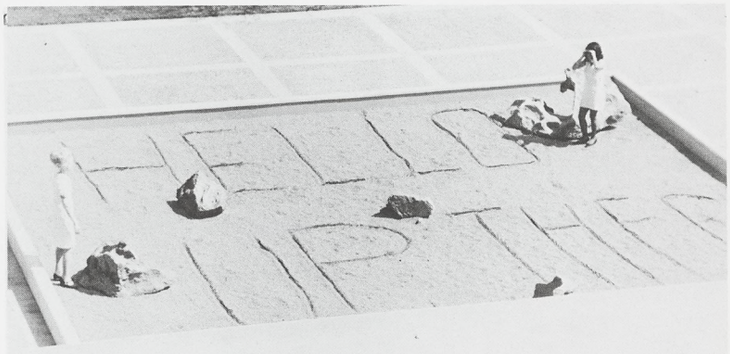
George F. Douglas, Northrop senior vice president, Administration, addressed the graduates on how HIP training, coupled with their school's academic courses, can give students a head start in the business community.

Classes in practical subjects were taught by Northrop specialists who volunteered their off-duty time.

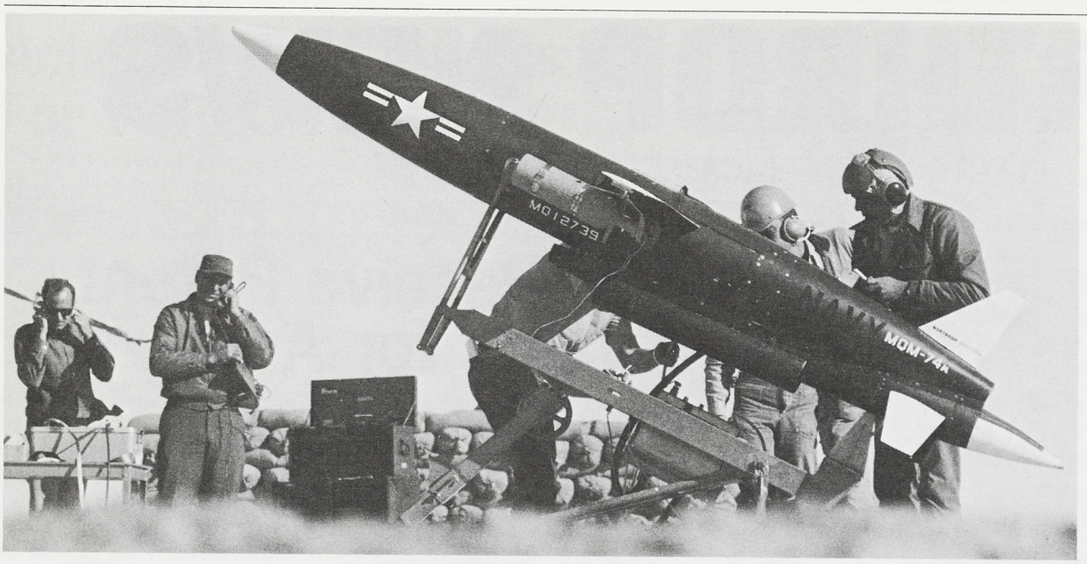
Mrs. Seaman Speaks to Club

Mrs. Betty Seaman of the American Cancer Society will speak on "The Golden Age of Quackery" at the May 31 meeting of the Management Club in the Empire Room of the Grand Hotel across from Disneyland in Anaheim.

Because of the importance of Mrs. Seaman's talk on medical frauds, the club has opened the meeting to wives of members and guests. Any Northrop personnel desiring to hear Mrs. Seaman's address may obtain tickets from club members.



SHERRY BURR, LEFT, AND ANN DEAN take a close look at a friendly message some unknown soul left in the rock garden in front of Building Y-3. Scarcely visible from the ground, the message stands out when viewed from the Environmental Systems area on the fourth floor. The girls say it adds a friendly touch to their day to look out the window and see the sign.



NORTHROP MQM-74A READY FOR LAUNCH
U.S. Navy team makes final preparations prior to firing Ventura-built target.

WORLD LEADER

Nineteen Nations Use Ventura Targets

Although probably best-known for its design and production of the Apollo Earth Landing (parachute) System, Northrop's Ventura Division is the world's leading producer of remotely-controlled aerial targets — more than 65,000 manufactured since 1938.

Northrop targets, which are recoverable and re-usable, simulate full-size aircraft to weapons systems and anti-aircraft teams. Now in service in 19 nations, the Northrop targets have proven reliable and cost-effective in keeping gun and missile crews at combat readiness.

The latest version, the turbojet propelled MQM-74A or Chukar, as it is known internationally, has proven extremely successful in operations at the NATO Missile Firing Installation (NAMFI) on Crete. NAMFI users are Greece, Germany, Belgium, The Netherlands and the U.S.

Attaining maximum speed at sea level of 400 knots, the Chukar can maintain an airspeed of 425 knots at 20,000 feet for 143 nautical miles. Performance ceiling is 40,000 feet.

The Chukar is propelled by a Williams Research-built WR-24-6 open-cycle turbojet engine rated at 121 h.p. at 60,000 revolutions per minute. JATO bottles give the Chukar added boost at launch.

Simulating the attack modes of missiles or aircraft, the Chukar is a formidable foe. For example, to a gun crew at 400 yards the Chukar appears as a supersonic fighter at 1,000 yards.

Various augmentation systems make the Chukar compatible to many weapons systems. Crews using 40-mm, 20-mm, and 0.50-in. guns fire at the target, as do Hawk, Redeye, Chaparral or Nike-Hercules missile teams.

Radar and infrared air-to-air missiles such as the Sparrow and Sidewinder can also be used against this Northrop target.

Armed forces using Northrop targets are able to use ground support equipment which in many cases is interchangeable between the advanced Chukar and KD2R-5 Basic Training Target. Such GSE includes remote control systems, tracking systems, and related support equipment.

Drawing on more than 30 years of experience, Ventura engineers are now at work on the next generation, known as Remotely Piloted Vehicle (RPV). Military planners envision a host of different uses for RPV's.

WW II REUNIONS SET FOR THIS SUMMER

Eligible Northrop employees are invited to attend reunions of three World War II Air Force groups this summer.

The first is the 30th anniversary get-together in Las Vegas of former members of the Air Force Transport Command on the weekend of May 19-21. The ATC pioneered many routes and procedures for trans-ocean flying that set the pattern for expansion of commercial transport aviation.

The second is the Hump Pilots Assn., which is holding its 27th reunion at the Riviera Country Club, Palm Springs, Aug. 17-20. The Hump Pilots include those who flew supplies from India to China.

The third reunion is the first staged by the newly formed P-40 "Warhawk" Pilots Assn. It will be held at the Imperial House North in Dayton, Ohio, Sept. 15-17. Northrop's John Alison is the organization's secretary. The "Warhawk" was the first American World War II fighter to engage in combat in every theater of war throughout the world.

Northrop Invests in Chestel, Inc.

Northrop has acquired a minority interest in Chestel, Inc., a recently formed company that designs an attachment for telephones to eliminate the need for switchboards in systems up to 50 lines.

Northrop's interest in Chestel is under the management of Northrop Technology Development, Northrop's venture capital subsidiary which was organized to invest in small, technology-oriented companies in the commercial markets.

David Joslow, president of Chestel, was a founder and former president of Chester Electronics Laboratories, a subsidiary of General Telephone and Electronics Corp.

In taking a minority position in Chestel, Northrop said it had agreed under certain conditions to provide additional financing and thus acquire a larger minority interest in the company.

RAY TOP LENSMAN

Lauren Ray, Aircraft Division technical publications production specialist, has won top prize—a Savings Bond — in the annual Winter Photo Day competition staged by the Palm Springs Aerial Tramway.

Mr. Ray's winning entry was a photo of Cindy Blake, an Anaheim model and dancer, perched atop a rock outcropping.

THE WELCOME SIGN is out again for Northrop families at Disneyland with Northrop Night slated for May 20. Tickets for the event are still available through all NRC outlets at all divisions and facilities. The $4 tab per person includes parking, admission, and unlimited use of all attractions except shooting galleries. The park will be open to Northrop families exclusively from 8:30 p.m. to 1:30 a.m.

Northrop's Order Backlog Increases During Quarter

Northrop's order backlog at March 31, 1972 had increased to $613,200,000 compared to $477,916,000 on the same date last year, according to the company's quarterly report to shareholders.

The report, which covered the first three months of 1972, reported net sales at $113,306,000 compared to $143,638,000 for the corresponding period in 1971. Total sales figures include those of Wilcox Electric and the George A. Fuller Company, recent acquisitions of Northrop.

The drop in sales is attributed to lower deliveries of 747 fuselage assemblies, declining F-5 sales, and phase-out of the T-38 trainer.

Although primary earnings per share were 52 cents compared with 56 cents for the same period a year ago, the ratio of earnings to sales for this three-months period was 2.1 per cent compared with 1.9 per cent a year earlier.

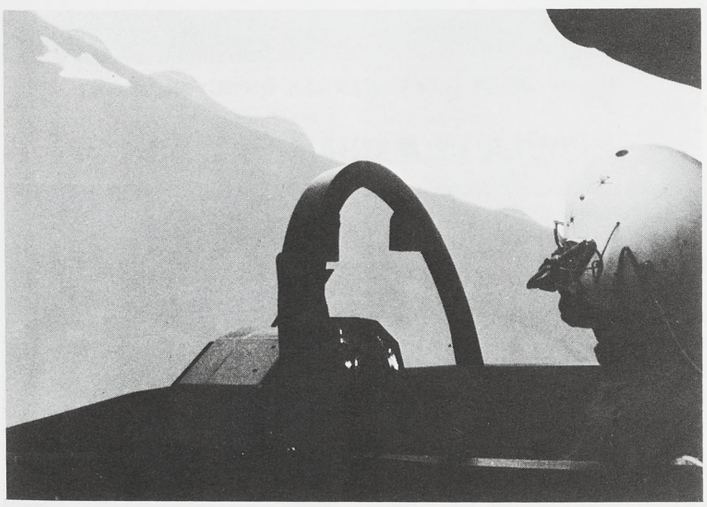
The backlog figures do not include the $39 million contract just received from the U.S. Air Force for a Lightweight Fighter.

Electronics Div. Expands Medical Data Systems

Northrop Corporation continued its expansion into the medical data systems market with acquisition, for cash, of the assets of Predictive Medical Systems Inc., a wholly owned subsidiary of Pacific Measurements, Inc., Palo Alto, Calif.

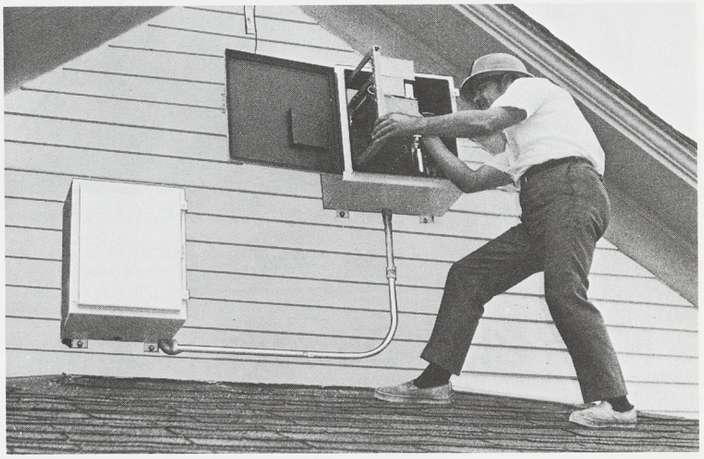
In making the announcement, Ross F. Miller, vice president and general manager of Northrop's Electronics Division, noted that the assets and personnel of Predictive Medical Systems will be merged with those of Berkeley Scientific Laboratories which Northrop acquired last month from Tracor, Inc.

JIM NORMAN, Environmental Systems, right, and John St. John, supervisor of Engineering R&D, Service Research Center, Ford Motor Co., check out the Northrop-Olson Labs, Olson-Horiba, display of vehicle emission test equipment at the recent Society of Automotive Engineers exhibition in Detroit. Both Mr. Norman and Mr. St. John were panelists on the important SAE seminar, "Diagnostic and Maintenance Effects on Environmental Control."



THIS IS A PILOT'S-EYE VIEW of target inside Northrop's new Large Amplitude Flight Simulator/Wide Angle Visual System. The simulator cockpit is located in the exact center of the projection screen to eliminate distortion. Target image projector subsystem provides a 90 to 1 variation in image size for target range information, and three directions—pitch, roll and yaw—of target model rotation. Pilot horizontal field of view in the simulator was recently increased to 210 degrees. The simulator is built by Northrop's Aircraft Division.

News From Around The Company



THE NEW RURAL Subscriber Radio Telephone developed by Hallicrafters will extend telephone service.

Hallicrafters Develops New Rural Telephone System

Hallicrafters Co., a Northrop subsidiary, has developed an economical solution to extending rural telephone service in domestic and international markets by utilizing many advantages of VHF radio.

The new Rural Subscriber Radio Telephone development consists of two systems. The RTV-51 is capable of connecting up to 10 subscribers on a party line basis, except that the telephone line is extended by VHF radio up to a distance of 30 miles from the central telephone office.

The second system, the TRV-51ML, connects from one to 20 subscribers on a private line basis over a single pair of VHF radio frequencies.

The two systems provide for the extension of telephone service to locations that are distant from the central telephone office when it is uneconomical to connect by open wire, underground cable or high density radio.

The systems, which meet or exceed existing transmission objectives for subscriber service, are completely compatible with any existing automatic dial or manual exchange. They require low initial capital.

Robert Shank Appointed President Of Northrop's Wilcox Electric, Inc.

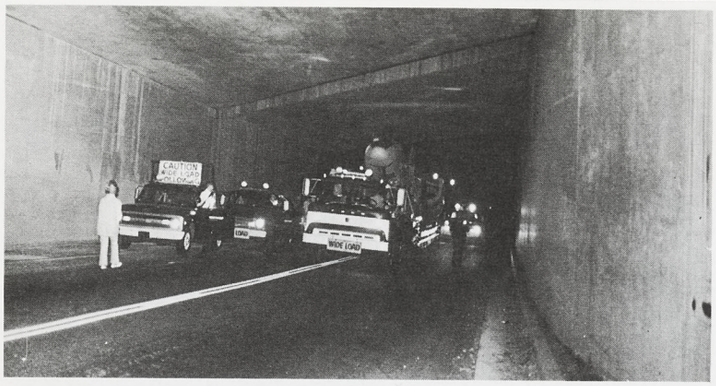
Robert J. Shank has been appointed president and general manager of Wilcox Electric, Inc., Kansas City, Missouri, a subsidiary of Northrop Corporation, according to an announcement by Thomas V. Jones, Northrop president.

Wilcox Electric, Inc., specializes in the manufacture and marketing of electronic navigation and communications equipment for commercial aircraft, general aviation, and ground-based electronic navigation and commercial equipment lines for airport installation.

Organizationally, Mr. Shank will report to Harrison Van Aken, vice president of Northrop and president of Hallicrafters Co., also a Northrop subsidiary.

Mr. Shank was formerly a vice president for plans and business development for AIL Inc., a division of Cutler-Hammer. He has had a long and successful career in the aviation field, and has received international recognition for his contributions to the development and acceptance of Microwave Landing Systems.

Mr. Shank has held key management positions with Hughes Aircraft Company as vice president, engineering; president of American Systems Inc. of California; and as associate administrator of development of the Federal Aviation Administration.



MISS BLAIR, LEFT, CHECKS TUNNEL CLEARANCE

CAN DRIVE 'EM TOO

Miss Blair Directs Trucks

Airplanes can't always fly and when they join cars on the road the exacting job of moving them through traffic is handled at Northrop by a petite blonde woman who weighs less than the big double tires on the heavy trucks she bosses.

She is Maybelle Blair, manager of Highway Transportation for Northrop's Aircraft Division. Her latest job was responsibility for trucking the Northrop A-9A prototype close air support aircraft from its factory in Hawthorne to Edwards Air Force Base for initial flight tests.

The A-9A has a length of 53.5 feet, wingspan of 58 feet and a height of 17 feet. The wings were removed and the fuselage was carried in one trip and the wings in another.

To plan the transfer Miss Blair had to map the route, measure all underpasses and tunnels for clearance of the 17-foot tail section, check road curves and bridges, to insure that the big load could pass.

In addition she had to arrange road permits from Los Angeles City, Los Angeles County, cities of Glendale, Burbank and San Fernando. The trip began at midnight in order to avoid jamming traffic.

The 130-mile trip took exactly six-and-a-half hours. Miss Blair accompanied the truck, at times getting out and walking ahead to give signals as the heavy load inched through narrow tunnels.

While admitting that moving an aircraft over a highway is exacting work, Miss Blair said it was not particularly difficult.

"It is just a matter of everyone working together," she said. "Art Trowbridge of Transportability Design, made a cradle that fitted perfectly, our loaders, under the supervision of John Champion, dropped the plane in smoothly and then our drivers drove as if they had a cargo of eggs."

Miss Blair began at Northrop as a part time helper. She took her first permanent job in 1945, but dropped out for two years to play second base with the Chicago Cardinals, a professional girls' baseball team.

Her first job at Northrop was pedaling a bicycle to deliver mail. Then she graduated to driving a car and finally became a truck dispatcher.

At that time she decided that if she expected 50 male truck drivers to respect her she had to show them she could do anything with a truck that they could. She learned to drive the biggest trailer rig and then passed a state examination for a heavy equipment operators driver's license.

"I've been fortunate in the type of people I have been privileged to work with," she said. "This includes not only all our crews, but also John McNamara, our manager of Transportation, and especially Norman Girard of the Los Angeles city government, who was so helpful in getting us street clearances and then went along on the trip to give us a hand."

MISS BLAIR and truck driver Wayne Barnett.

Buckley Builds Kayaks for Boy Scouts' Summer Fun

For real summer fun, take a tip from the Eskimos. At least that's what Larry Buckley advises.

Mr. Buckley, who is with the Electro-Mechanical Division's Quality Control, builds and paddles kayaks, Eskimo-type boats.

He got into the Eskimo-boat building in 1956 as part of his work with the Norwalk Boy Scout Troop 549.

"We picked kayaks over canoes because the Eskimo boat is unsinkable," he recalled. "We build them with thin pine stringers which are screwed to supports. Then canvas is stretched over this frame, sewn and doped with lacquer which causes the canvas to stretch tight."

The only change he makes from the original Eskimo design is to enlarge the cockpit. "This is done so that if the boat turns over, the rider can get out."

The result is a light boat that can never sink, he says. "Often on long trips in the hot summer we fill them with water and float along submerged just under the surface of the river to keep cool."

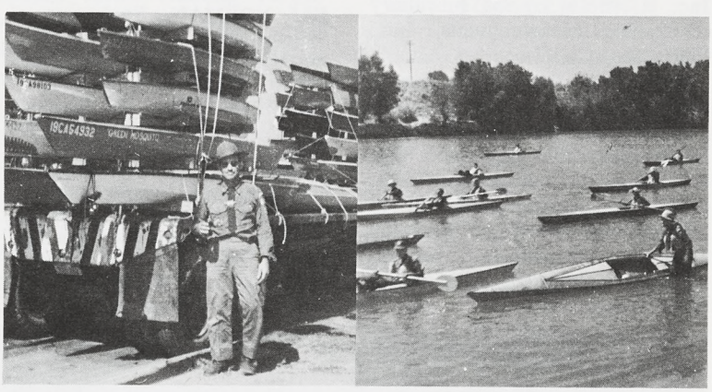
The first kayak trip was such a success that Mr. Buckley made copies of the plans which he made available to other scout troops. The number of boats grew and by the next year there were enough to make a kayak trip down the Colorado River.

River Trip

The highlight, as he recalls, was a 1959 trip down the Sacramento River from Redding to Sacramento.

"We had 110 kayaks coming down the river at the same time," he recalls. "There were boats as far as you could see. Each kayak holds only one occupant. But since they are so safe and each paddler is required to wear a life jacket, we were able to float boys as young as 11 years old."

Total cost is about $11 per boat. He still has some copies of the plans which Northrop employees can have if they'd like to try kayaking.



MR. BUCKLEY, LEFT; KAYAKS ON RIVER, RIGHT

PAULA IS A CHAMP AT NINE

Paula Saavedra, daughter of Shari Saavedra of the Aircraft Division is a basketball champion at nine years old.

Paula, who plays guard mostly, is a member of the 8-10 girls basketball team that won first place in the Lakewood Parks and Recreation Association tournament.

To win the city championship Paula's team had to come from behind in the last of their third playoff game to tie in the fourth quarter and then win in the third overtime.

Although the smallest member of the team, Paula is an expert at stealing the ball from the opposing side.

PAULA SAAVEDRA

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Triumph, 1968 Spitfire, Mark III, spoke whls., 21,000 mi., new clutch, $850. 213-672-8750.

Pontiac Tempest, new tires, $600. 213-676-2718.

Lincoln Continental, 1963, 58,000 mi., $500. 213-323-9003.

Volkswagen Camper, 1968, w/pop-top & Wesphalia int., extras, $2,100. 805-482-5451.

Station Wagon, 1962 Chev., 9-pass., V-8, new motor, $300. 714-528-5461.

Truck, 1967 Chev., ¾-ton, w/teardrop camper, 25,524 act. mi., a/c, p/s, p/b, V-8 eng., will sell camper sep., $4,500. 213-835-7668.

T-Bird, 1959, $150. 213-542-5260.

Datsun P510, 1971, 2-dr., 4-spd., mags, tach., radio, pwr. d/brakes, 7,300 mi. $1,895. 213-374-6727.

Oldsmobile, 1966 Cutlass convt., 50,000 mi., $1,200. 213-320-8085.

Oldsmobile, 1965 Delta 88, 4-dr. h/top, p/b, p/s, tilt steering whl., a/c, AM radio, $695. 213-325-8752.

Volkswagen Camper, 1971, pop-up roof, tent, $3,300. 213-374-8201.

Volkswagen, 1969 fastback, $1,300. 213-789-5791.

Volkswagen bus, 1964, $850. 213-842-8724.

MGTF, 1954, reblt. motor, $1,900. 213-288-3432.

Dune Buggy, VW, street legal, top, toe bar, $795. 213-320-7126.

Volkswagen, 1968, r/h, $875. 213-542-3459.

Station Wagon, 1964 Malibu, auto. trans., p/s, 283 V-8, $400. 213-378-0501.

Pickup Truck, 1965 ¾-ton Ford, auto. trans., a/c, 68,000 mi., $1,195. 213-673-2843.

Dune Buggy, 1970, 40 h.p. VW, many extras, $1,200. 213-644-0866.

Cadillac, 1967 DeVille convt., min. bid $1,195, Credit Union ext. 1117.

Buick, 1969 Le Sabre, 4-dr. h/top, fact. a/c, r/h, p/s, p/b, $2,000. 213-530-1212.

Volkswagen Camper, 1967, German unit, pop-up roof, 8-ply tires, lug. rack, $1,995. 213-675-4318.

Miscellaneous For Sale

Ring, diamond, solitaire, approx. ½ carat, $250. 213-325-5859.

Motorcycle, 1969 Suzuki, 250 cc, dirt & st. equip., $450. 213-671-9067, 213-673-0306.

House, corner, 1½ yrs. old, 2-story, 4-bdrm., 2 baths, cathedral ceiling, f/place, f.a. heat, bltins, cpts., dps., Cerritos, $32,500. 213-860-3022.

Coffee Pot, 42 cup, avocado, West Bend elec., $8. 213-679-5506.

Outboard Motor, 5 h.p. Johnson, $65. 213-675-2005.

Truck Tires, 2 7.50x16 8-ply rated, mounted on 8 lug split rim whls., fits any ¾-ton Ford or Dodge, $25 ea. 213-371-2948.

Fishing Tackle, salt & f/water reels, rods & assort. tackle, $50. 213-755-6118.

Knitting Machine, Princess, 48″ wide, $40. 213-373-3386.

Mirror, 28″ x 48″, antique white, scroll design, $25. 213-326-0124.

Movie Projector, Ricoh, 8-mm, self-threading, fwd., reverse, self-contained carrying case, $50. 213-851-1376.

Trailer, 1968 Cardinal, Low Line, $900. 213-675-3541.

Motorcycle, 1967 Bonneville Triumph, reblt., $750. 213-325-2613.

Typewriter, IBM elec., $145. 213-673-5614.

Cassette, car stereo player, recorder, 8 tapes, $85. 213-292-9082.

Refrigerator-Freezer, 14 cu. ft. Philco Ford Frost Free, 14 mos. old, $250. 213-641-6322.

Motorcycle, Kawasaki 120 TR, $275. 213-372-3827.

Rugs, 7 Navajo, from 24x29″ to 76x130″, $20-$400. 213-374-6137.

Refrigerator, Frigidaire, 16 cu. ft., $45. 213-756-3669.

House, Gardena-Hollypark, 3-bdrm., 2 baths, serv. porch, bltins, covered patio, att. 2-car gar., $30,900. 213-323-8213.

Piano, small upright, walnut, $175. 714-528-6914.

Miscellaneous For Sale

Trailer, 16′ Fire Ball, self-contained, elec. bks., sleeps 7, $1,150. 213-699-8173.

Water Softener, large, $50. Box 501.

Bed, maple, twin, $20. 213-675-7316.

Band Saw, Power King, 12″ throat, ⅓ h.p. elec. motor, $100. 213-833-7903.

Boat, 11′ glass o/wood, $100. 213-644-2009.

Formal, burgundy bodice w/pink chiffon, worn once, size 11, $35. 213-860-8266.

Surfboard, 7′ Rick, $25. 213-374-8608.

Dressers, 2 white provincial, $125. 213-326-3136.

Tent, 9x16, $50. 714-524-9688.

Shotgun, Remington 1100, auto. 12 ga., shot 18 times, $100. 213-644-7941.

Acreage, 5 acres, 10 miles w. of new Hilton Hotel in Victorville, 10% dn., $13,500. 213-430-1952.

Motorcycle Trailer, 3-bike cap., hvy. duty, spare whl. & tire, $150. 213-323-2358.

Surfboard, Bing Foil, 7′, $50. 213-378-2790.

Crib, high chair, playpen, porta crib, $50 or sell sep. 213-377-5003.

Dryer, Kenmore, $20. 213-328-3438.

Dining Table, walnut, 4 chairs, brown tweed seats, $35. 213-635-7942.

Windows, 8 wooden, 28″ x 36″, $2 ea. 213-379-4517.

Utility Trailer, Sears, 4′ x 5′, metal top, whl. & tire, $200. 213-542-5691.

Trailer Hitch, Volkswagen, bolt-on type, $25. 714-525-8327.

Rotisserie & broiler, & shish kebab attach., Farberware, $53. 213-324-4475.

Surfboard, 7′4″, light wt., Creative Design, no dents, $70. 213-328-6662.

Acreage, 2½ acres, Antelope Valley, east side, water & elec. to prop. corner, $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Divan, 6′, & matching chair, Lawson style, med. green nylon, $100. 213-670-2564.

Stove, O'Keefe & Merritt, 4 burners, $80. 213-679-6395.

Boat, 16′ o/board, 35 h.p. Evinrude, $495. 213-379-5592.

Entry Door, custom, 36″ x 80″, $48. 213-674-3558.

Ring, Masonic Consistory w/diamond, $125. 213-530-0765.

Engine, 396 C.I.D. Lincoln, 100 mi. since complete o/haul, access. & trans. avail., $400. 213-676-3095.

Dog Kennel, extra lge., suitable for air freight, used once, $25. 714-832-5050.

Motorcycle, 1969 CL 125 Honda, low mileage, $225. 213-377-5897.

Camera, Polaroid mod. 210, flash attach., $30. 213-675-7915.

Lawnmower, Black & Decker, 18″, rotary, grass catcher, 50′ cord, used once, $50. 213-323-6840.

Mobile Home, 47′ x 8′, w/w cpts., new refrigerator, metal awning, $1,795. 213-675-6585.

Motorcycle, 1970 Honda Trail 90, street equipped, $300. 213-378-4422.

Bed, single, mattresses, box springs & frame, bookcase h/board, $35. 805-498-2787.

Pool, 12′ dia. x 3′ deep, w/filter & ladder, $60. 213-325-3675.

House, cust. blt. Mexican style, 4-bdrm., 3-bath, copper plumbing, 2,500 sq. ft., Catalina view, elec. bltins, 3-car gar., P. V. Pen., $61,900. 213-377-5055.

Clothes Poles, 2, lge., steel, $5. 213-534-2290.

Boat, 26′ Trojan Express cruiser, sleeps 4, galley, o/riggers, bait tank & pump, 10 hrs. since major eng. o/haul, $3,750. 714-894-5425.

Desk, steel w/wood grain nevermar top, 6-drwr., $60. 213-892-7972.

Bicycle, Schwinn, ladies 3-spd., $49. 714-892-1945.

Camera, Polaroid, color, M-60, used 3 times, access., $50. 213-676-4492.

End Tables, Danish walnut, $15 ea. 213-541-3000.

Yard Lounges, 2 redwood, $6.50 ea. 213-376-4831.

Gieger Counter, Hoffman, mod. 216-1, 4 digit scaler read out, 2 min. timer, A & B batt. check, $150. 213-676-6390.

Slide Projector, 35 mm, TDC Bell & Howell w/45 30-slide trays, $30. 213-374-4780.

Guitar, elec., hollow body, 6-string, 2 pick-ups, $75. 213-325-0448.

Sewing Machine, portable, Sew Rite, $35. 213-677-7421.

Mini Bike, Taco 99, 5 h.p., $60. 714-528-1180.

Miscellaneous For Sale

Couch, 8′, $30. 213-423-1363.

Stove, Kenmore Deluxe, tabletop mod., gas, dble. oven, 1 elec., $100. 213-676-5404.

Crib, new mattress, spring, $15. 213-644-3742.

Revolver, dble. act., Colt offc. mod., match 22, adjust. rear sights, case, $95. 213-370-7904.

Bible, lge. home type, King James version, never used, $50. 213-675-5755.

Mini Bike, Taco, new motor just installed, $70. 213-377-1074.

Bumper, front, Karmann Ghia, fits any yr. up to '71, $25. 213-329-2893.

Refrigerator, Frigidaire, $45. 213-756-3669.

Pool Equipment, Diatomaceous Earth Filter for up to 18′ dia. Doughboy, ⅓ h.p., $30, other items. 213-860-3450.

Motorcycle, 1967 Minarelli Testi, 50 cc scrambler, new 5-port head, $99.50. 213-377-2552.

Rifle, .270 Remington mod. 700 ADL, Weaver K4 scope, 3 boxes ammo, case, $125. 714-527-3554.

Acreage, 40 acres in Latigo Canyon, Malibu, old house, 3-car gar., water springs, drilled well, water tanks, access roads, $3,500 acre. 213-457-9600.

Motorcycle, Bultaco Lobito, 1968, 100 cc '68, completely reblt., many extras, $260. 213-322-1974.

House, 3-bdrm., 1¾ bath, family rm., f/place, $33,000. 213-327-2279.

Cemetery Lot, dble. interment, Inglewood Pk. Cemetery, $995. 801-394-5657 or Box 502.

Bicycle, 10-spd., $90. 213-672-2338.

Acreage, 4 acres, near Bend, Ore., $6,200. 714-838-1470.

Cemetery Lots, 2 single, Avalon Plot, Inglewood Pk. Cemetery, $300 ea. Box 503 or 916-459-3333.

House Trailer, 15′, sleeps 4, ice box, propane stove, 12 V., 110 V. & propane lights, $595. 213-927-0578.

Stove, self-clean, elec., $150, other items, various prices. 213-863-7547.

Lot, Lake Havasu, R1, lake view, $4,875. 213-377-9842.

Wanted to Buy

Exercycle, or similar. 213-372-7270.

Camera, 35 mm, & enlarger. 213-375-8460.

Dishwasher, portable, & kitchen stove, preferably gas, in good condition. 213-478-5784.

Camper Shell, for 8′ Chev. pickup, reasonable price. 213-291-0025.

Filter, capable of handling 1,000-1,500 gallons of water, & wheelbarrow. 213-833-6045.

Dune Buggy, in good condition, willing to do some work, reasonably priced. 213-679-8095.

Go-Kart, in operable condition, prefer small horse power. 213-831-6480.

Free (To Be Given Away)

Pups, cockapoo, 4 males, 2 females, various colors, 6 wks. old. 805-497-2598.

Kittens. 213-370-6431.

Cat, frost point Siamese, adult male, neutered. 714-322-2578.

Rentals Offered

Cabin, Lake Arrowhead, family only, $55 w/end, $125 wk. 213-831-1745.

Apt, 2-bdrm., unfurn., sub. parking, pool, bltins, custom cpts. & dps., 10 min. to Northrop, Lawndale, $165. 213-670-6084.

Cottage, Ocean Bch., near Mission Bay, make reservations now, $80 wk. 714-826-2007.

Cabin, Green Valley Lake, $65 wk. 213-320-2002.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, $125 1 wk., $200 2 wks. 213-375-2255.

Apt, 2-bdrm., 1½ bath, cpt., dps., all elec., adults, $185 mo. 213-372-7862.

Cabin, Big Bear City, 2-bdrm., 1-bath, $40. 213-320-6486.

Condominium, 1-bdrm., in Mammoth, sleeps 5, complete kit. & supplies, pool, rec. rm. $30 wk/end, $70 wk. 213-785-1405.

House, Bass Lake, $150 wk. 213-374-3702.

Cabin, Lake Gregory/Crestline, walk to lake, sleeps 6, furn., $30 wk/end, $75 wk. 213-545-6313.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn. incl. linens, $35 wk/end, $100 wk. 213-823-1788.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 wk/end. 213-326-7232.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40wk/end, $70-$90 wk. 213-868-8040.

Scout-O-Rama Set for June 3

The 1972 Scout-O-Rama will be held Saturday, June 3, from 11:30 a.m. to 7:30 p.m. at three locations: Loyola High School, 1901 Venice Blvd., Los Angeles; El Camino Jr. College, 16007 Crenshaw Blvd., El Camino; Cerritos Jr. College, 11110 E. Alondra Blvd., Norwalk.

Emphasis is on "Scouting American Style," and tickets are available from any Boy Scout or Cub Scout at $1 each.

Banura Given School Honors

George A. Banura, son of Aircraft Division's Arturo Banura, has graduated magna cum laude from Northrop Institute of Technology.

In earning his bachelor of science degree, George Banura was a fall listee in "Who's Who Among Students in American Colleges and Universities," recipient of the Herbert W. Hartley Scholarship, and a ranked member of the Dean's List every quarter.

Rentals Offered

Cabin, nr. Arrowhead & Running Springs, sleeps 4-5, $35 wk/end, $90 wk. 213-370-7105.

Camper, 11′ Galaxy, 1971 Ford pickup, sleeps 6, $100 wk. & .05 mi. 714-544-0730.

Apt, unfurnished, 2-bdrm., new cpts. & dps., bltins, near Long Beach Fwy., $149.50. 213-426-4060.

Motor Home, 1971 Pace Arrow, 20′, sleeps 6, a/c, self-contained, fully equipped, insurance, $150 wk., $50 wk/end. 714-846-1858.

Condominium, 2-bdrm., Palm Springs area, furn., heated pool, $100 wk., $60 wk/end. 213-327-8994.

Apt, 1-bdrm., unfurn., Redondo King Harbor, 1 month's free rent, cpts., dps., gar. w/ storage cabinets, $150. 213-376-6226.

Cabins, Lake Gregory & Crestline, reserve early, sleeps 6, $65 wk. 213-821-8150.

Rentals Wanted

House, 3-bdrm., Torrance area, no pets, $275 mo. 213-378-7208.

Personals

Thank you for sharing our sorrow. Your thoughtfulness, prayers, flowers & cards were appreciated. THE FAMILY OF FRANK COX.

Thanks to NRC & fellow employees for the flowers & cards received during my recent illness. JIM DYAR.

We wish to thank all those Northrop people who extended their kind expressions of sympathy at the passing of our husband & father. ILA ROMANO, CAROLE & MIKE.

We wish to thank all our friends at Northrop for the retirement party & gifts. RICHARD & DORINE VENCILL.

We wish to express our sincere appreciation for the kind expressions of sympathy at the passing of our wife & mother. HAROLD W. CHRISTENSEN & DAUGHTER, KAREN.

Thanks to all my friends at Northrop for your cards & gifts during my illness. GEORGIA CARLIN.

Our sincere thanks to the many friends in Dept. 5503 who so kindly remembered me during my surgery & convalescence. MR. & MRS. RALPH DYE.

Thanks for all the cards & calls during my recent hospitalization. JOE PILLOW.

I wish to thank all my friends at Northrop for their good wishes & lovely retirement party. A. VOOGD.

Sewing & alterations. 213-323-1476.

For Sale or Trade

Water Bed, $30 or trade for prof. hair dryer & chair. 213-675-6020.

AT SIX YEARS OLD

Melissa Aims at Olympics

Is there a budding Janet Lynn or Peggy Fleming in the Northrop family? It's too early to tell about six-year-old Melissa Crownover, but she is on the right track.

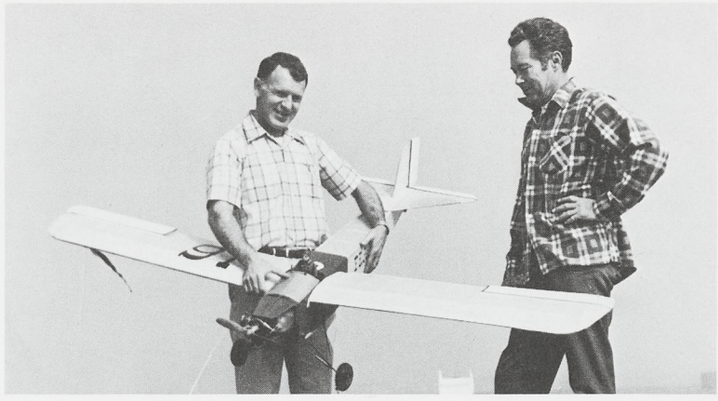
Melissa recently passed her United States Figure Skating Association Preliminary Test which is the first of nine tests en route to an Olympic gold medal.

MELISSA CROWNOVER

Competitively, Melissa is also doing well, having won one competition and placed favorably in another during the month of March.

She won the Washington, D.C. Figure Skating Club preliminary competition. She then placed eighth in 14 in the 50th annual Middle Atlantic Competition which paired the best eight-year-olds and under from the District of Columbia, Maryland, Delaware, Pennsylvania, New York, New Jersey, Connecticut and Rhode Island against each other.

Melissa was the only six-year-old to place this high. She is the daughter of Mr. and Mrs. James E. Crownover, Jr. Jim is staff assistant to Bill Jenkins in Northrop Service Inc.'s Eastern Operations Department.



JULIAN BLOOM shows his new radio-controlled plane to Doug Cooke, right, commissioner of the NRC Model Aircraft Club. The plane, called "Frantic" because it is based on the Antic design, has a 77-inch wingspan and the basic shape of the 1911 Bleriot. The design was modified to make a one-piece wing and there are motor controls on aileron, elevator and rudder. Power is a .29 cubic inch engine and flight control is through a five-channel radio built from a kit. The plane was built in three weeks. The Model Aircraft is one of the most active of NRC activities. New members are always welcome.

Forty-Four Reach 20-Year Service Mark During First Quarter of Year

Forty-four employees reached the 20-year service mark during the first three months of this year.

Those reaching the milestone in January were Pearley Ball, Doris Criss, Lloyd Cushman, Richard Estes, Floyd Grady, George Garner, Robert Lane, William Perry, Eugene Smith, John Stryker, and Gordon Wilcox.

February's 20-year veterans were Art Boston, Howard Brown, John Collins, Raymond Gebler, Alvin Goodale, Charles Hargrove, John Lahn, Ivan Lane, Donald McInnis, David McKinney, Thomas Nusbickel, Jr., Edward Paul, Billy Perkins, Nita Payne, Stanley Ryan, Edward Steliga, Madaline Tracy, Glenn Tyte, Verne Wieser and Inez Willauer.

In March there were Bert Beard, Ulyss Basham, Carl Carlson, Genevieve Fleming, David Harvey, John Haupenthal, Jr., Joseph Khalil, Jesse Macias, John Spirnak, Elaine Sturtridge, Charles Smith, Donald Taylor, and Joe Williams.

KEGLERS FINISH WINTER LEAGUE

Team Seven — Betty Schulz, Mike Schulz, Dick Smestad and Ellie Nicholson — outrolled opponents to take the first place trophy in the NRC Winter Bowling League, according to Grace Heath, league secretary.

Team Nine — Ernie Verdugo, Don Loomer (who was also league president), Jan Loomer and Frankie Menzie — took second place trophy.

In addition, Mr. Verdugo took the Men's High Series with 710. Zan Thrall was top in the Women's High Series. Dick Jolley bowled the Men's High Game, and Mary Strickland the Women's High Game.

Ray Ebbert, former NRC Bowling commissioner, has resigned because assignment to Field Engineering will require considerable travel, and has been replaced as commissioner by Ernie Verdugo.

Holiday Coming

The Electro-Mechanical Division will observe Monday, May 29, as one of the company's regular paid holidays, according to Paul Faranda, manager, Industrial Relations.

NRC PICNIC SET

The popular annual NRC Family Picnic is set for August 20 this year, according to Roy Steinestel, special events chairman.

The picnic is planned for a new location. It will be at Silver Lakes Picnic Grounds, Norco. The area is easily accessible via the Riverside Freeway to the Norco turnoff. Silver Lakes is described as the most beautiful and extensive setting yet used for any of the division's picnic.

Patent Awards

(Continued from page 1)

tions, the analyzer can detect and pinpoint the exact position in the engine of faulty valves and leaking rings.

The invention employs a unique "window generator" that narrows the operation of the analyzer to permit precise reading of individual engine cylinder timing. This allows for comparison of the characteristics of individual cylinders with the average of all other cylinders to identify differentials in performance.

The result is an accurate picture of the internal operations of the diesel engine.

The analyzer is presently being developed for use with diesel engines only.

HENRY W. WEDAA displays a picture of his daughter Karen, one of a 14-picture spread of the young lady used in a recent issue of Seventeen Magazine. Karen, 18, contacted the magazine while in New York recently as a result of winning a cover girl contest sponsored by Co-Ed Magazine.

BIG CATCH is displayed by Gus Grijalva, Dick Eccarius, Ron Grishaber, and Danny Diener during a recent deep sea fishing trip at Ensenada, Mexico. The three-day trip by members of the Reproduction section produced a bountiful catch of rock cod, ling cod and sheepshead cod. Mr. Grijalva took the boat jackpot with a fish weighing 15 pounds. They made the trip in Ron's van. The jaunt was also a combination goodwill trip. They delivered donated boxes of used clothing to the Ensenada church.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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MILT WEBB AND EMMITT KLEBBA CHECK DATA

Olson Makes Noise Tests

Olson Laboratories, Inc., nationally known for its work in vehicle emission testing, is expanding into vehicle noise monitoring, according to Donel Olson, company president. The company's first contract in this field is to determine the comparative noise levels of a new-type muffler and its ability to conform to California noise standards.

The noise test program is being conducted by the California "Drive-By" procedure. The test vehicle is accelerated in low gear and the noise level in decibels is measured for noise level comparison. The automobile is tested with the sponsor's muffler installed and then with a standard muffler.

The program is under the direction of Milton Webb of Olson Laboratories, assisted by Emmitt Klebba. Correlation of the test results with alternate test procedures is being conducted by Gordon Bricken of Northrop's Environmental Systems Department.

Olson Laboratories is a Northrop subsidiary.

Environmental Systems Receives New Contracts

Northrop's Environmental Systems Department has received three important new contracts for automobile emission test programs in California and Colorado, according to Dr. Robert D. Gafford.

The first contract is with the California Air Resources Board for a study to evaluate the effects of higher ambient air temperatures on vehicle performance when the automatic ignition advance has been disconnected.

The ignition advance (vacuum actuated) on an automobile distributor advances the spark, thereby controlling the point during the piston stroke when the spark plug fires. Such automatic advances increase power and performance, but add to an automobile's pollutant emissions. Disconnecting the advance materially reduces both hydrocarbon and oxide of nitrogen emissions, two of the three major vehicle pollutants. The other is carbon monoxide.

Purpose of the six month study will be to determine if disconnecting the vacuum advance will result in engine overheating on hot days.

John Gunderson, project engineer for the study, said the tests would involve about 200 Northrop employee cars. These vehicles will be run on a dynamometer that simulates 50-mile speeds on a load equivalent to three per cent grade. The test chamber air will be conditioned to simulate driving in 80, 90 and 100 degree ambient temperatures.

The test program began June 1. The program will not involve any of the suggested methods for cutting the vacuum advance back in as temperatures approach the danger mark, but will be restricted to evaluating the principle of totally eliminating vacuum advance. However, proper measures have been incorporated in the test chamber to protect the tested vehicles from any damage.

The second contract, also with the California Air Resources Board, is for additional data analysis of a previous Northrop-conducted program for ARB. This program was to determine the feasibility of a mandatory vehicle emission test and maintenance program in California.

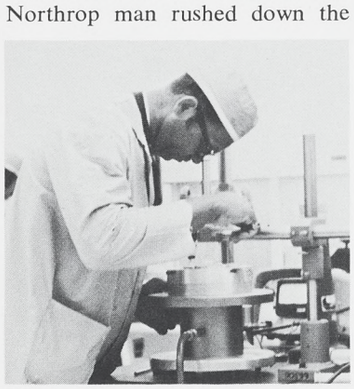
The ARB's Vehicle Emission Control Division is studying the need for tighter controls over vehicle emissions. The new contract is for Northrop's Environmental Systems Department to utilize the data base established in the previous program to answer

(See CONTRACTS, page 6)

Cecil Allen Saves Man from Burning Car

A crowd of 20 people was watching the blazing wreck when Cecil Allen stopped on the edge of the Riverside Freeway at 2:20 a.m. on Mother's Day. He could see the silhouette of a man inside the burning vehicle.

"He's already on fire and there is nothing you can do," a bystander shouted to Allen as the Northrop man rushed down the embankment to the burning car.



CECIL ALLEN
At work at Northrop.

"I could see that the driver was trapped inside and on fire," Mr. Allen said later. "But I just couldn't stand there and watch him burn."

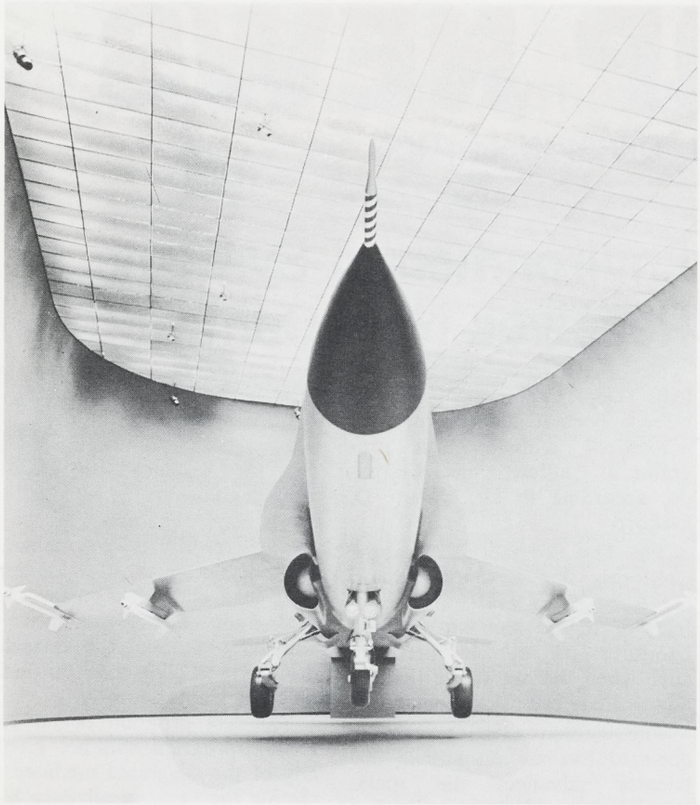
Mr. Allen, who is a drummer in a band that plays on weekends at a pizza parlor, was returning from an engagement with his wife, Jerry, and three children, John, David and Lena, when Mrs. Allen saw the flames from the wreck and called his attention to it.

Rushing to the wreck, he saw the victim, a 21-year-old man named Glenn Lee Brown, was pinned under the car and that his hair was aflame. Ignoring shouted warnings that the ruptured gas tank might explode any second, he grabbed handsful of dirt and threw on the victim to put out his burning hair. Then grabbing the front of the compact car, he heaved it off the injured man and pulled him to safety. A short time after the gas tank did explode as Mr. Allen had been warned.

Shortly after this, police and fire department rescue crews arrived, and Mr. Allen left without identifying himself. He suffered

(See MR. ALLEN, page 6)

THE ANNUAL NRC Family Picnic will be held in this beautiful setting at Silver Lakes Picnic Grounds at Norco. The picnic is set for August 20.



THIS VIEW OF NORTHROP'S new P530 air superiority fighter shows why the aircraft is known as the Cobra. The leading edge extension of the wing, which flanks the forward part of the fuselage, closely resembles the hood of a Cobra. The P530, however, with its quick-firing M-61 gun and air-to-air missiles, will have a bite more deadly than its namesake. The new fighter is designed to meet the defense needs of the Free World in the 1975-1990 time period.

NADC May Plan Thai Airport

The National Executive Council of Thailand has advised Northrop Airport Development Corporation (NADC) that a decision has been made to construct a new international airport at Bangkok to serve the growing needs of this major air transportation hub of Southeast Asia.

A special committee headed by Air Marshal Dawee Chullasapya has been established by the Royal Thai Government with instructions to negotiate a contract with NADC for the total airport program including the master plan, design and construction. NADC, located in Vienna, Virginia, is a subsidiary of Northrop Corporation.

The NEC stated that, although the present airport at Don Muang is being expanded to take care of the needs for the immediate future, design and construction of a completely new international civil airport must begin immediately in order to keep pace with expanding aviation traffic, tourism and Thailand's rapid economic growth.

It is estimated that the first phase of this new international airport will be completed in five years and will cost approximately 100 million dollars (U.S.). Additional phases of expansion are planned over a subsequent 25-year period. It will be one of the most modern and efficient airports in the world and will be designed to handle Thailand's passenger and air cargo growth for 25 years from 1977.

The new airport site will be at Nong Ngu Hao approximately 20 kilometers southeast of Bangkok.

After meetings with Air Marshal Dawee Chullasapya, Glenn R. Lord, president of NADC, said, "We consider it a great honor to have the opportunity to work under the direction of the Royal Thai Government and to participate in building one of the world's most modern and efficient international civil airports."

HOLIDAY COMING

July 4 will be observed as one of Northrop's regular paid holidays.

Another long weekend is scheduled for Sept. 4 when the company will observe Labor Day.

Rex Madeira Brings Wide Experience to Northrop

Rex H. Madeira is president of Northrop Worldwide Aircraft Services, Inc., formerly Page Aircraft Maintenance, Inc., which Northrop acquired this month.

Mr. Madeira, who attended the University of Oklahoma's School of Mechanical Engineering, began his career in the aerospace industry as an instructor at the Spartan School of Aeronautics in 1941.

In 1945 he was made assistant coordinator of the Inter-American Program, sponsored by the U.S. Government, which established an aircraft engine training program for 250 Latin American students.

This was followed by duty as assistant director and then director of Spartan's School of Aviation Mechanics. After a tour as project engineer for special assignments, he became assistant director of training in 1953 and director of Training in 1954. In this position he was responsible for over-all management of Spartan School of Mechanics, School of Flight Engineering, School of Flight Ground School, School of Meteorology, School of Aircraft Instruments, and logistics support for the schools and students.

In 1956 he became sales manager for Spartan Aircraft Division and in April 1957 joined Page Aircraft Maintenance Inc., as executive vice president and general manager, moving to president in February 1964.

MR. MADEIRA

NORTHROP PAYS CASH DIVIDENDS

Northrop's board of directors has declared a quarterly dividend of 25 cents per share on Northrop common stock. The dividend is payable June 24 to shareholders of record June 5.

The board also declared a quarterly dividend of 36¼ cents per share on Northrop $1.45 cumulative preferred stock, payable July 8 to shareholders of preferred stock of record June 20.

A-9A Cachet Covers Ready

A-9A first flight covers are available for stamp collectors at Personnel Activities. Through arrangements with the NRC Stamp Club, the covers are printed with an attractive cachet of the A-9A. They have an 11 cent air mail stamp and were cancelled by the post office on the day of the flight. They are priced at 35 cents each or three for a dollar.

CIRCUS TICKETS

Personnel Activities at the Aircraft Division has reserved 250 seats at The Forum for the Ringling Bros. and Barnum and Bailey Circus on Sunday, July 30.

The performance starts at 6 p.m. Box seats are $5.25, but employees pay $4.25.

Wilcox System Tested by FAA

Wilcox Electric Company's Mark I/C Instrument Landing System is currently undergoing an extensive FAA field and flight test evaluation program at Dulles International Airport near Washington, D.C.

The Mark I/C system consists of a single frequency localizer station, capture effect glide slope station, two marker beacon stations and remote control and status display equipment.

The localizer and glide slope systems have met all performance requirements, according to FAA engineers. Test results of the remaining equipment have not been announced.

Prior to delivery of the system to the FAA, the Mark I/C completed reliability demonstration testing without a single failure. The system was operated successfully for more than 28 days. This exceeded the contractual requirements for demonstrated Mean Time Between Failure (MTBF).

Wilcox is a wholly owned subsidiary of Northrop.

ONCE AGAIN THE EVER-POPULAR Northrop Night at Disneyland, sponsored by NRC, provided Northrop families and their friends a wonderful time.

Old Pin Earrings Rewards Wife

When Leo Grizel, Electro-Mechanical Division, received his 25-year service pin recently he was left with obsolete 15 and 20-year diamond-studded pins.

Instead of putting the old pins away, he used a bit of gold-plated loop wire, two small rings and a couple of ear pieces to turn them into earrings for his wife, Elna.

"At first I wondered about the propriety of my wife wearing my old pins, but then I decided that she had contributed a lot to my working with Northrop and that she was as much entitled to wear the service awards as I am," he said.

The earrings were presented to her on Mother's Day.

The editorial in the adjoining column is excerpted from a new McGraw-Hill editorial series on America.

→

EDITORIAL

'—Promises to keep, and miles to go before I sleep.'—Robert Frost

IN 1976 America will celebrate the 200th anniversary of a unique promise: the promise of "Life, liberty and the pursuit of happiness." It is good to pause and look back on what we have done to make this promise come true, and also to look ahead, because America has new promises to keep.

We have promised to make life more meaningful. To conserve our natural resources. To restore our environment. To clean our air, our water, and to reshape our cities.

We have promised to safeguard public health. To give new hope to the poor and to assist the disadvantaged and enrich the lives of the old. All these things and more we have promised ourselves, but how do we match promise with performance?

There are no simple answers, but as we stand hesitant at a crossroads, it is perhaps time for a little plain talk.

There is no easy path that will take us where we want to go. The easy paths lead backward or nowhere. There is no way to produce less and have more. No way to sit on our aspirations and expect things to take care of themselves.

Somebody, somehow, has got to do the conserving, protecting, restoring, rebuilding, safeguarding, educating and enriching.

The only way to do a better job in all these areas is to work at the job. Work harder, or smarter, or both. And most importantly, work together. There is no liberal way, no conservative way, no business way, no labor way. There is only a productive or a non-productive way.

THE productive way calls for all of us to join together. Not in perfect harmony, not in ultimate brotherhood or in some high-flown crusade. But in the simple recognition that we all—business, labor, government and private citizens have a job to do.

Thus we all have contributions to make. The original promise was set forth in the Declaration of Independence. The new promises of America call for a new Declaration of Interdependence.

This awareness of our mutual dependence is the new Spirit of '76. It cannot be proclaimed, imposed or legislated. It will begin only when people look at our goals on one hand, forget our petty squabbles on the other, and conclude, "We can't get there from here."

There are, at this crossroads in time, many paths to take, but there is only one way to go. Forward. Together.

For we have promises to keep and miles to go before we sleep.

General Geranopoulos Has Had Busy, Dramatic Life

Northrop International's office in Athens, Greece, is one of the busiest in the company's worldwide network. Currently General C. D. Geranopoulos, director, is working on such programs as the F-5E program in Greece, follow-on target contracts on Crete for the Ventura Division, the new Athens International Airport for Northrop's Airport Development Corp., and other programs of interest to Page, Hallicrafters and the Electronics Division.

Being busy is no novelty to General Geranopoulos — being busy is the story of his life. He was born in Cairo, Egypt, of Greek parents in 1914. Shortly after his birth, his parents returned to Athens where he attended the First Gymnasium, the oldest Athenian school in the old part of the ancient city. This, he says, qualifies him to call himself a "pure Athenian."

He graduated from the Hellenic Air Force Academy in 1936 and was a World War II fighter pilot. After Greece was occupied by the German army, he tried unsuccessfully to escape and then organized a resistance group called "Homer" for the classical Greek poet.

By 1942 he had expanded Homer into an intelligence network of 500 people, including three sabotage groups. The Germans arrested him in 1944, but he escaped two weeks later in a small fishing boat, making his way through Turkey and the Middle East to Egypt where he rejoined the exiled Hellenic Air Force.

He returned to liberated Greece in 1945 to command the Hellenic Air Force Academy. From 1947 to 1949, during Greece's war against the Communist guerrillas, General Geranopoulos served in various positions with his country's Tactical Air Command.

In June 1954 he was promoted to general and assigned to NATO's 6th Allied Tactical Air Force, returning to Greece in 1955 as deputy chief of staff for Operations. In 1957 he became a major general and vice chief of the General Air Staff.

He left the Hellenic Air Force in 1961 as a lieutenant general and in August became a part-time consultant to Northrop International. In March 1963 he became a full-time consultant to Northrop, and in August 1969 became Northrop's resident director in Greece.

During the 11 years he has worked for Northrop, General Geranopoulos contributed to the F-5 program in Greece, the Greek TV network built in Greece by Northrop Page Communications' Page-Europa subsidiary, and the Target Services for NATO on Crete.

GENERAL GERANOPOULOS

'Bud' Montag Is Named NAS VP

B.W. "Bud" Montag, Jr., has been appointed vice president of Northrop Architectural Systems, according to James E. Ware, president.

Northrop Architectural Systems, located in the City of Industry, is a wholly owned Northrop subsidiary engaged in manufacturing architectural metal products for homes and buildings.

Mr. Montag is a 16-year veteran of Northrop. Prior to being elected vice president, he was controller for Northrop Architectural Systems, coming here a year ago from a similar position with Northrop Carolina. Previous to his assignment to Carolina, Mr. Montag was with the Ventura Division.

NORTHROP GREECE OFFICE

VERN LIPPERT AND PACKED CAMPING BOX

SPACE-SAVER

Lippert Helps Girl Scouts

Next time Northrop's Vern Lippert and his wife, Joanne, take their Girl Scout troop on a camping trip they'll be taking more equipment but it will take up much less space.

Mr. Lippert, an Engineering planner at the Ventura Division, has designed and produced a special camping equipment box. The new multi-purpose wooden container holds enough cooking and eating utensils, tools, and related necessities to accommodate a patrol of eight to ten girls.

A Girl Scout leader for two years, Mr. Lippert said the troop "used to pack all the stuff in three or four cardboard boxes." He saw some other equipment boxes and "I combined all of their good features into one."

The result after a month of design and two months of part-time fabrication would please a professional cabinet-maker.

"Actually, we've already tried it out twice and it works just fine," explained Mr. Lippert. A special feature includes a folding aluminum stand which can be used to raise the box to a level providing a counter-type work space.

Bigger items, such as tents, lanterns, stoves and food are packed separately. "What the box does is take all of the little loose ends and puts them all together," he noted. The girl in charge of the box has a checklist so that all of the 67 items can be accounted for.

Mr. Lippert became active as a Girl Scout co-leader with his wife, after she took over a troop three years ago. And Mrs. Lippert's interest was sparked by a Girl Scout daughter, Theresa, 15.

"We have 35 girls in Cadet Troop 307," Mr. Lippert said, "and a big waiting list." The Woodland Hills youngsters are in the 13-15 age group. But Theresa is not in their troop. She's in another one.

The Lipperts want to make sure Theresa develops her own personality with her peers. "But she'll be going with us this summer when we take the troop to a Colorado Ranch for 10 days," he adds.

Girl Scouting means a lot to the Lipperts. Aside from running the troop ("actually the girls run it themselves"), Mr. Lippert headed his area's annual fund-raising drive this year and Mrs. Lippert was in charge of the same campaign the previous year.

But in concentrated time, the equipment box represents one of the biggest efforts. Mr. Lippert needs three more for his other patrols by next fall. "This time the other fathers will help," he says with a laugh.

SPACE-SAVER UNPACKED

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Pickup, V-8 Ford, 1956 custom cab, F-100, ½-ton, 312 eng., stick shift, o/drive, $700. 213-756-1812.

Buick, 1967 Skylark, 2-dr., vinyl h/top, r/h, p/s, auto., new bks., $1,200. 714-832-5050.

Jeepster, 1948 Willys, convt., Chev. powered, auto., flr. shift, $285. 213-679-3889.

Rambler, 1962, 4-dr. sedan, 46,000 orig. miles, 6-cyl., std. shift, $400. 213-329-6420.

Mustang, 1968, 390 eng., p/b, p/s, Cruisomatic trans., a/c, AM-FM stereo radio, $1,799. 213-431-9620.

Chevrolet, 1960, 2-dr., r/h, 6-cyl., std. shift, $200. 213-673-2637.

Mustang, 1965 convt., 3-spd. stick, reblt. eng., $600. 213-534-3410.

Chevrolet, 1964 Super Sport Impala, p/s, r/h, $550. 213-644-3742.

Karmann Ghia, 1966, new clutch & tires, $850. 213-375-9527.

Oldsmobile, 1963 F-85 Cutlass, rear body part damaged, Hydra. trans., posi-trac. diff., a/c, p/s, p/b, radio, $125. 213-679-9195.

Pontiac, 1959 Sky Chief, good eng., $150. 714-644-5265.

Fiat, 1968 124 sport cpe., $1,300. 213-325-0487.

Karmann Ghia, 1958, '60 eng. & trans., needs body work, $150. 213-324-2690.

Pickup, 1968 Ford F-100 Fleetside, Gem top camper, auto. trans., r/h, 2 bltin bunks, $1,875. 714-521-5552.

Volkswagen, 1965, needs body work, $175. 213-347-7861.

Ford, 1968 Falcon, 2-dr., auto., r/h, p/s, $695. 213-671-4550, 714-638-1164.

Mustang, 1965, 2-dr. h/top, 289 V-8, 35,000 mi., r/h, p/s, p/b, auto. trans., $950. 213-675-6885.

Volkswagen, 1968, r/h, 36,000 mi., $1,095. 213-644-0738.

Chevrolet, 1957, '64 Corvette 327 hi-perf. eng. & posi-trac. diff., 3-spd. Munsey trans., $395. 714-737-2742.

Panel Truck, 1963 Chev., 6-cyl., floor shift, $600. 213-542-1946.

Station Wagon, 1963 Rambler Classic 500, 6-cyl. short blk. eng., r/h, 12 mo. warranted batt., auto. trans., $225. 213-677-0518.

MG TF, 1954, reblt. motor, $1,900. 213-288-3432.

Chevrolet, 1964 Nova, auto., 6-cyl., 2 dr., $600. 213-676-4464.

Volkswagen, 1959, r/h, $250. 213-823-4258.

Buick, 1964 Riviera, new tires, $600. 213-542-5070.

Buick, 1956, $200. 213-327-2252.

Volkswagen, camper, 1971, 13,000 mi., $3,100. 213-421-2121.

Toyota, 1971 Corolla, AM-FM radio, new tires & brakes, $900. 213-329-1861.

Volkswagen, 1970 1600TL fastback, electronic fuel inject., disc brakes, Blaupunkt AM-FM radio, $1,800. 213-834-7589.

T-Bird, 1957, new paint, $1,595. 213-833-3402.

Ford, 1964 Fairlane, 2-dr., 6-cyl., $250. 714-828-5843.

Dodge, 1965 Custom 880, 2-dr., a/c, p/b, p/s, $325. 714-830-4236.

Plymouth, 1965 Fury III wagon, a/c, radio, p/s, p/b, rack, orig. owner, eng. o/hauled, $650. 213-377-1074.

Subaru, 1971 Deluxe 360, 3,000 mi., $500. 213-265-2935.

Maverick, 1970 Grabber mod., 200 cu. in., 3-spd. man. trans., $1,600. 714-644-5752.

Miscellaneous For Sale

Cartop Carrier, fully enc., water proof, lge., approx. 4′ x 7′ x 18″, $15. 213-375-4574.

Dog, reg. pomeranian, male, 2½ yrs. old, pedigree papers, $75. 213-542-7564.

Organ, Thomas, mod. 565, walnut, solid state, $850. 213-888-8018.

Bicycle, Raleigh chopper mod., $35. 213-454-2675.

Hardtop, for 1963-67 Corvette, $150. 213-631-3008.

Antiques, dishes, glassware, 38 items, $2 & up. 213-375-8536.

Exercise Bike, used little, $30. 213-326-5731.

Miscellaneous For Sale

Acreage, 2½ acres, off Pearblossom Hiwy. in Antelope Valley, 10% dn., $11,500. 213-430-1952.

Lens, 35 mm 2.8 Auto-Vivitar, Pentax fitting, $25. 213-328-4128.

Camper, 1969 mod. 800, Californian, 9′ cab-over, dble. SS sink, ice box, stove, stabilizers, La Jaga loader, $1,150. 213-375-1324.

Couch, Hide-A-Bed, $35. 213-426-4060.

Travel Trailer, 1971 22′ Roadliner, fully self-contained, 12,000 b.t.u. roof air, Honda rack, $3,300. 213-542-4624.

Amplifiers & pre-amplifiers, Heathkit, $39 or sell sep. 213-376-4831.

Motorcycle, 1971 Honda 100 SL, 700 mi., $325. 805-492-2177.

Accordion, Contello, 120 bass, $200. 714-778-4517.

Tent, Sears, 9x18, pole carrying case, sand stakes, $95. 213-323-7171.

Mobile Home, 1966 Golden West, 20′x57′, 2-bdrm., 2 bath, bltins, f/air ht. & cooler, cpts., dps., awnings, skirts, stor. bdg., $11,500. 213-835-7668.

Metal Detector, Tech-Tronic, lightweight mod., $50. 213-675-2005.

Saxophone, $100. 213-672-8750.

Wall-Beds, 2 fold-ups that swing out from door-jamb mount, 1 roll-away, $80. 714-892-1945.

Guitar, elec., Harmony semi-acoustic mod., Humbucking pickup install., $69.50. 213-377-2552.

Archery Bow, 70-lb. pull, recurve, $35. 805-498-2787.

Pups, springers, AKC, $75 & up. 213-994-5683.

Airplane, Tripacer, 150 h.p., full panel, 360-channel radio & omni head, at Torrance Airport, $3,800. 213-378-1523.

Cabin Tent, Sears, 10′x16′, 1-yr.-old, $120. 213-328-7880.

Dining Room Chairs, 6, Mediterranean style, $9 ea. 213-860-3022.

Acreage, 2½ acres, Antelope Valley, E. side, water and elec. to prop. corner, $400 dn., $45 mo., 7% int., $4,950. 213-378-1026.

Rocker Arms, Chrysler 392 MT alum., $50, many other parts. 213-371-2531.

Amusement Center, Magnavox, color TV-stereo-record player, Mediterranean, $600. 213-663-3622.

Surfboard, 7′ 4″, light wt., by creative design, $50. 213-328-6662.

Washer & dryer, Westinghouse, matched, elec., $50 ea. 213-833-7903.

Hairsetter, Sears elec. mist, 20 rollers, used once, 1 yr. guarantee, $7. 213-670-4645.

Sewing Machine, Sears zig-zag, portable, case, table, $50. 213-675-5965.

Motorcycle, 1968 Montgomery Ward Mojave, street-type, 250 cc, less than 4,000 mi., $225. 714-772-7394.

Cemetery Lots, 2, Garden of Benediction, Rose Hills Memorial Pk., $700. 714-839-2764.

Audio Stereo, record changer & 4-track tape cartridge recorder-player combo on 1 base, $135. 213-322-1892.

Pistol, Frontier Scout, 22 single action, 6 shot, w/holster, western style, $40. 213-370-3821.

Trailer Hitch, E-Z, 2 yrs. old, for 14′ to 18′ trailers, $60. 213-676-5787.

Bar, Mediterranean style, 5′ long, padded armrest, stools, $150. 213-373-4336.

Cats, Siamese, pr. male & female, neutered, declawed & all shots 15 mos. old, $50 pr. 213-324-4507.

Golf Shoes, ladies 6a/3a, white, worn once, $10. 213-379-3300.

Engine, Plymouth, 426 c.i. Wedge, complete balanced, heads redone, $225. 213-675-3195.

Fertilizer Spreader, 20″, $10. 213-676-3050.

Motorcycle, Heathkit Boonie, trail type, almost new, $125. 213-695-1687.

Playpen & car bed, infant's seat, bumper pad for full size crib, $22. 213-374-7625.

Tires, for dune buggy, 11.00-16 high floatation, mounted on wide Porsche whls., $75. 213-821-9110.

Acreage, 15 acres, adjacent to California City Airport runway, 10% dn., $270 mo., $2,000 acre. 714-892-5801.

Tent Trailer, 1968 Nimrod, attach. side room, $450. 714-847-5220.

Crib, full-size, new mattress & teething rails, $10. 213-324-9904.

Coffee Table, Italian marble, 16″ h. x 20″ w. x 60″ long, $45. 213-645-0709.

Beds, maple, twin, $25. 213-541-3000.

Sofa, sec. 3-pc. blue-green brocade, $120. 714-842-1962, 714-531-4318.

Miscellaneous For Sale

Camper, 8′ Merced, cabover, butane stove w/oven, sink, 16 gal. water tank, 75 lb. ice-box, $795. 213-370-6400.

Mobile Home, 1971 Villa West, 24x52, 2 bdrm., 2 bath, Alcan siding, air, w/skirting, carport, covered porch, utility shed, many extras, $17,500. 213-835-1443.

Motorcycle, 1970 Kawasaki, 238 cc, st. legal, $350. 213-532-7846.

Motorcycle, 1955 Triumph, 650 cc, $400. 213-323-1476.

Home, steps to surf, 3-bdrm., 2 baths, f/ place, sunporch & apts., 2-bdrm. & 1-bdrm., $72,500. 213-379-4471.

Bedroom Set, 5-pc., king, contemporary, cherrywood, mattress & box springs, $275. 213-379-4572.

Floor Polisher, w/shampooer & scrubber, Regina, 2-spd., $30. 213-329-2842.

Refrigerator, GE & dinette set, $40. 213-679-2409.

Motorcycle, 1964 Yamaha, 80 cc, step thru frame, st. legal, $125. 213-377-5450.

Travel Trailer, 1972, fiberglass, 12′, gas/elec. refrig. & lights, 3-burner stove, htr., 12 gal. water tank, awnings, $1,395. 213-378-2369.

Wedding Set, combination white & yellow gold, $500. 213-866-4104.

Motorcycle, 1970 Hodaka Ace 100, many extras, $225. 213-325-7759.

Boat, 18′ 7″ Glastron Sea Flite, 90 h.p. Evinrude motor, trailer, extras, $1,200. 213-371-0714.

House, 3-bdrm. & family rm., 1¾ ba., P.V. f/place, h/wood floors, f.a. heating, det. dble. gar., near Aircraft Div., $32,500. 213-327-2279.

Recording Tape, Scotch, 14 new 7″ reels, $1.45 ea. 213-673-5614.

Dinette Set, modern walnut & black vinyl, round table w/leaf, 4 chairs, $45. 213-672-1090.

Lot, 50′ x 170′, & lifetime membership in Lake Elizabeth Ranch Club, golf course & lake, terms or $2,500. 805-252-2468.

Clothes, junior & girl's, new & used, sizes 10-14, $2-$10. 213-833-7819.

Seats for VW, 1 front, 1 rear, gray, $15. 213-541-2843.

Wash Basin, Vitrous china w/cabinet below, complete w/fittings, $10. 213-328-0887.

Cemetery Lots, 4, Green Hills, $250 ea. or $800. 213-784-3802.

Refrig.-Freezer, Admiral, frost-free, 2-dr., 13 cu. ft., 4 yrs. old, $100. 213-644-4859.

Refrigerator, Westinghouse frost free, white, $100. 213-373-3067.

Boat, 1970 Minisport, 40 h.p. Merc., trailer, $995. 714-644-1195.

Trans-a-Cord, Milton Mann, & amplifier, 3 yrs. old, $595. 213-371-8766.

Slim-Gym orig., $35, moving, many other items. 213-679-2864.

Wanted to Buy

Rug, approx. 18′ x 20′, any color. 213-372-3827.

Engine, 5 to 10 h.p., air-cooled preferred. 213-374-2915.

Nazi Daggers, WW II, will pay from $25-$1,000. 213-375-4312.

Northrop News & Radioplane Target publications, prior to 1966, 1 copy of ea. consecutive biweekly or monthly, to complete historical collection. 805-495-4595.

Free (To Be Given Away)

Pebbles, load, lge. size. 213-676-6726.

Parakeet, incl. cage. 213-375-1685.

Poodles, twin silver miniature, AKC, papers, 8 yrs. old, to good home. 213-860-3450.

Kittens, 2 part Siamese & Burmese, 3 full Siamese. 213-679-8095.

Rentals Offered

One-half Duplex, 2-bdrm., Imperial Village, unfurn., no pets, small child o.k., gar., $140 mo. 213-675-2075.

Apts, 1 & 2-bdrm., unfurn., cpts., dps., stove & refrig., adults only, near Aircraft Div., $115 & $150 213-676-8283.

Apts, new duplex, 2-bdrm., 2 baths, bltins, dps., cpts., pvt. gar., 1 block from Northrop, $200 mo. 312-772-1789.

House, on 5 acres, Big Bear Lake, 2-bdrm., f/place, furn., all utils., sleeps 8, $100 wk., $45 wk/end. 213-325-8267.

Cabin, Lake Arrowhead, family only, $55 wk/end, $125 wk. 213-831-1745.

Vacation Cabins, Idyllwild, 1 & 2 bdrm, stream, patio, f/place, $30-$40 wk/end, $70-$90 wk. 213-868-8040.

Cabin, 2-story on Big Bear Lake, sleeps 12, f/place, all elec., boat dock, $125 wk., $45 wk/end. 714-893-0410.

Rentals Offered

Apt, 2-bdrm., unfurn., cpts., dps., bltins, air-cond., pool, adults, no pets, $155. 213-325-2512.

Motor Home, 1971 Pace Arrow, 20′, sleeps 6, a/c, self-contained, insurance, $150 wk., $50 wk/end. 714-846-1858.

Mountain Home, Big Bear City, 2-bdrm., 1 bath, f/place, furn., incl. linens, $35 wk/end, $100 wk. 213-823-1788.

Cabin, Big Bear Lake, 3-bdrm., 2 baths, f/place, furn., family only, $125 wk., $50 wk/end. 213-326-7232.

Studio Apt, 2-bdrm., 2½ bath, sub. gar., adult bldg., Inglewood, $225 mo. 213-670-6084.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, $125 wk., $200 2 wks. 213-375-2255.

Cabin, Lake Arrowhead, close to lake & village, patio, f/place, $75 wk. 213-845-5949.

Condominium, Palm Springs area, furn., 2-bdrm., heated pool, $100 wk., $60 wk/end. 213-327-8994.

House, 2-bdrm., stove & refrig. optional, by Century & Aviation, $190 mo. 213-644-3531.

Vacation Cabins, Lake Gregory & Crestline, sleeps 6, reserve June-Sept., $65 wk. 213-821-8150.

Motor Homes, 18′, $190 wk., $59 wk/ends, $28 day; 20′, $215 wk., $69 wk/end, $32 day. 213-676-8949.

Cabin, near Arrowhead & Running Springs, sleeps 4-5, $35 wk/end, $95 wk. 213-370-7105.

House, 3-bdrm., 1 or 2 working girls to share, walking distance to Hermosa Bch., child &/or pets ok, $95 mo. plus ½ of utils. 213-379-4641.

Apt, new, ocean front, 2-bdrm., 2 bath, bltins, f/place, open beams, no pets, couple preferreed, $350 mo. 213-374-0142.

Motor Home, 24′ Islander, sleeps 6, 115 vac. pwr. gen., a/c, fully equipped, self-contained, $200 wk., & 5¢ mi. 213-596-0024.

Chalet, Lake Gregory/San Moritz area, 3-bdrm., 2 baths, split tri-level, fully cptd., elec. stove, walk to lake, $55 wk/end, $160 wk. 714-626-8115.

House, Arrowhead, lake view, sleeps 6, blk. from lake & village, $50-$60 wk/end, $120-$130 wk. 213-821-8143.

Rentals Wanted

Garage, in South Bay area. 213-830-3816.

Personals

I want to thank all the people of Dept. 5754 for the cards & money collected at the time of my father's death. Friends at this time are very much appreciated. ROBERT L. WILLYARD.

Ride Wanted, 8 a.m.-4:42 p.m., between 190th St. & Artesia Blvd., W. of So. Bay Shop. Center, to Eng. Science Ctr., Aircraft ext. 1913, 213-374-6727.

Ride Wanted, 8 a.m.-4:42 p.m., Ravenspur Dr., Palos Verdes, to Plant III, Aircraft ext. 4901, 213-377-4727.

Car Pool or Ride Wanted, 8 a.m.-4:42 p.m., Rolling Vista Dr. & Palos Verdes Dr. N., Lomita to Eng. Science Ctr., Aircraft ext. 2313, 213-323-8213.

To each of my coworkers & friends in the Model Shop & Research Test Labs, your expressions of sympathy, floral tributes, & donations to the cancer fund in my wife's name, meant so very much to us. LARRY B. DAVIS & FAMILY.

Wish to join ride pool, 8 a.m.-4:42 p.m., Encino to Hawthorne Corp. Lab Bldg., Aircraft ext. 4808, 213-987-1570.

Ride Wanted, or share driving from Newbury Park to Mariposa, 7 a.m. to 3:42 p.m., Mariposa ext. 6211, 805-498-1235.

We wish to thank all our friends for best wishes & gifts received on our retirement. We leave with fond memories. HUGO & EUGENIA EPPOLITE.

The family of Camille Camet wish to extend our deep appreciation to Northrop for the blood donation & thank you all for your kindness. CHUCK & MARIE SPILLMAN & WIFE JACKI.

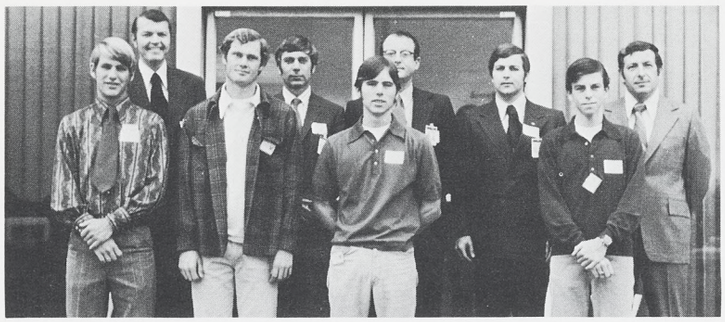
I would like to express my sincere gratitude to each & every one who so kindly remembered me during my recent surgery & convalescence. OLLIE CARTER.

We wish to thank all our friends at Northrop for the retirement party, good wishes & gifts. We shall add them to our many fond memories. ART & MARION WEBB.

For Sale or Trade

MGB, 1971, $2,300 or trade for car of equal equity. 213-671-2042.

Boat, 43′ Chris Craft, twin engs., live aboard facilities, w/docking in Marina Del Rey, $20,000 or might trade for house, or consider leasing boat. 213-823-7701.



FOUR STUDENTS from Anaheim high schools visited the division as part of Youth in Industry and Business Day activities to learn about working their future chosen careers. From left, above, they are Jim Truslow, Alyn Loys, Chris Porter and Tom Pascoe. Their guides for the day, back row, from left, are Roger Barquist, Ed Clark, Tom Barry, Jim Henrich and Jean de Beauvieres.

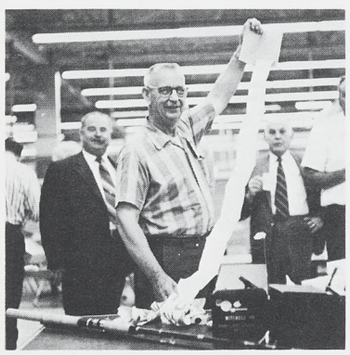
. . . Three Environmental Contracts

(Continued from page 1)

new questions relating to vehicle emission inspection.

Mr. Gunderson, who is also project engineer for this contract, said the previous program amassed a vast amount of data which can be adapted for a wide variety of studies. As a result, the new project will not require additional vehicle testing.

THE WINTER NOONTIME Bridge tournament was a triumph for the team of Nelson Owens, left, and Chuck Smith, right, shown receiving trophies from Jerry Winterton, tournament coordinator.



BOYD BACON'S LIST of friends is 'this long.' Boyd, who retired May 1 after more than 20 years as a carpenter with Plant Maintenance, received this long card of good wishes from his co-workers at the Electro-Mechanical Division.

The third contract is with the state of Colorado, Air Pollution Control Commission, to determine the feasibility of instituting a mandatory vehicle emission inspection and control program. Don Maruoka, project engineer for the Environmental Systems Department, said the study would be similar to that which the department recently completed for the state of California.

This investigation will determine the effects of periodic maintenance and retrofit emission control systems, the associated state and vehicle owner's costs, and the feasibility of combining an emission test program with the current safety inspection program. The study will also include a public opinion survey of Colorado citizens to evaluate the sentiments of both rural and urban residents on those factors related to air pollution, inspection costs, maintenance and repair costs, desirability of vehicle inspection, and other questions pertinent to their lifestyle, convenience, health and expenses.

Data obtained in the similar California study are not directly applicable to the Colorado environment, Mr. Maruoka explained, because automobile engines react differently at higher altitudes. In Colorado the operating altitudes vary from 3,500 to 10,000 feet. Roughly 93 per cent of the population live at altitudes between 4,000 to 7,000 feet. The data obtained in the Colorado program will be correlated with similar test data taken by the state of Arizona which has an elevation range similar to Colorado. These data, along with the California study data, will be used to analyze the effects of operating altitude on vehicle emissions.

Value of the three contracts is about $200,000.

Hourly Personnel Receive Cost of Living Adjustment

Hourly personnel will receive an eight cent per hour cost of living adjustment effective May 20, subject to Federal Pay Board approval, Frank W. Lynch, vice president and general manager, announced.

"Payment of this pay adjustment will be made as soon as possible after Pay Board approval has been received," Mr. Lynch said. "The pay boost was made in accordance with our current Cost of Living Plan which is based upon the U.S. Department of Labor Consumers Price Index. The index for March was 144.3, providing for the maximum of eight cents an hour."

In the future cost of living adjustments will be based upon the Department of Labor Consumer Price Index which uses 1967 as the base.

Contingent upon Pay Board approval, the revised plan will commence based upon the index average for July, August and September and any adjustment payable will be made in November 1972.

CAPTAIN R. S. DAVIDSON, commanding officer, Aviation Officer Candidate School, NAS, Pensacola, Fla., presents his commissioning certificate to Ensign Gary S. Niles, son of C. B. Chet Niles, Product Engineering. At center is Ensign Niles' wife, Michele, daughter of Don Stanton, Product Design. Gary will now undergo intensive ground and in-flight training for more than a year to earn "wings of gold" as a naval aviator.

Mr. Allen

(Continued from page 1)

three small burns on his hands and arms.

The injured man was taken to the hospital where he is now awaiting skin grafts. In the meantime his parents tried to find the name of the man who had saved their son's life. They learned his identity only after Mrs. Allen called the hospital to inquire about the patient's condition.

The parents then asked the Allen family to come to the hospital to meet their son. When they met Mrs. Brown, mother of the injured man, she told Mr. Allen: "What can I say to a man who saved my son's life? There are no words."

LUAU COMING

The annual Luau, co-sponsored by the EMD Management Club and NRC, will be open to all Northrop employees, and their guests, according to Art Eckel, club president.

The swinging Polynesian-style fun-fest is scheduled for July 22 at Disneyland's Luau Grounds. The $7 per person tab covers the South Sea banquet, dancing to the music of the Kona Kai group, and a full Hawaiian floor show.

CHARLES WHITE, left in white shirt, represented Northrop-Huntsville in a Tuskegee-Industry Cluster meeting at Tuskegee Institute, Alabama. Northrop was one of 33 major industrial companies represented at the meeting which was held to re-orient the companies' approach for assisting Tuskegee Institute to include comprehensive involvement with all academic areas. Other companies represented at the Cluster included Boeing, McDonnell Douglas, Hughes, General Motors, Eastman Kodak and others.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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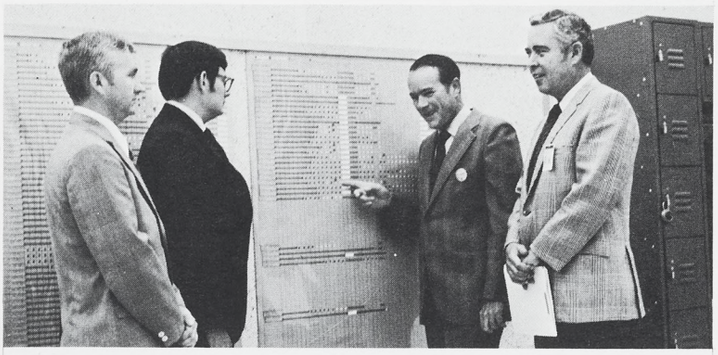


CAPTAINS Don Bishop and John Justice are briefed on division operations by Don McInnis and Gene Jessick.

Two A.F. Officers Complete Industry Training Program

Two Air Force officers, Captain Donald W. Bishop and Captain John A. Justice, worked three weeks with the Electro-Mechanical Division as part of their 43-week tour with Northrop under the USAF Institute of Technology Education with Industry program.

The program is designed to provide training for future responsible positions in Air Force Production/Procurement management. The long range objective is a broadened perspective of the government and industry relationship. This is the 20th year that Northrop has participated in the program.

During their study tour at the division, the officers functioned as management trainees.

A highlight of their tour with Northrop was a visit to the nearby regional Defense Contract Administration office where they met Colonel Richard E. Griffin. Colonel Griffin, as a USAF captain, took part in the Education with Industry program in 1960, also working with Northrop.

JIM PRATER receives the perpetual trophy from Golf Commissioner Vito DePaul (right) after winning the Third Annual George Baldwin Memorial Golf Tourney. Jim beat out a field of 64 golfers to take first place. Others scoring high were Otto Dorner and Chuck Luke with 66 each; Jaimie Lopez 67; Kevin Reid 68; Frank Kawaguchi 69; Frank Rangle and Gus Budginas 70; Drex Carlson 73; Joe Saline, Tom Fujimoto and Mike Barnitz 75. Previous winners were Don Larson, 1970, and Frank Merrell 1971.

Ferguson Replaces Miller

David N. Ferguson, formerly vice president and manager of Northrop's Precision Products Department, Norwood, Mass., has been named vice president and general manager of the Electronics Division.

Mr. Ferguson replaces Ross F. Miller, who has been promoted to the presidency of Northrop Page Communications Engineers operations in Iran.

Mr. Ferguson joined Northrop 16 years ago, after a career that included work which opened the field of modern inertial guidance and control.

After joining Precision Products Department, he guided the department to its position as the world's foremost producer of high performance gyroscopes.

Mr. Ferguson is a graduate of Northeastern University. He is a member of the American Society of Naval Engineers.

Joseph Yamron has been appointed vice president and manager of the Precision Products Department, replacing Mr. Ferguson.

Division Shares in Rollout of Tiger II

The Electro-Mechanical Division shared in work on the F-5E Tiger II, the new Northrop International Fighter shown for the first time at a rollout ceremony at Hawthorne on June 23.

Honored guests included Grant L. Hansen, assistant secretary of the Air Force; U. S. Congressman Charles H. Wilson; Governor Ronald Reagan; Lt. General James T. Stewart and John K. Northrop, founder of the company.

The Tiger II is an air superiority fighter designed to meet security needs for many free world nations in the next decade. It is a twin-jet supersonic fighter with low maintenance and operating costs.

Foreign sales of the F-5E are expected to have more than a $1.5 billion impact on the U.S. balance of trade over the life of the program, and will support more than 12,000 jobs in California alone.

The Electro-Mechanical Division's assembly group under Nick Niccole with Bill Levens as supervisor of F-5E assembly provides the F-5E control stick, throttle assembly, three-part speed brake, aileron, rudder pedal, pylon hardware and diverter valve.

In addition, the division machine shop under direction of Harold Cloyd, provides machine parts for the Tiger II. Division machinists manufacture the majority of parts used by the mechanical assembly group. They also provide a machine shop package of 20 individual parts for use in assemblies made in the Aircraft and Ventura Divisions.

Suggestions Pay Off for Parsons

John Parsons, senior technician at Brown & Root - Northrop's Goddard Space Flight Center Operations, Greenbelt, Maryland, was recently named winner in the Test and Evaluation Division's SAFE Suggestion program.

John submitted four outstanding safety ideas to reduce hazards to employees working in the test facility.

He received an engraved certificate, luncheon with the NASA T&E Division Chief John C. New, and a reserved space in the VIP parking section. He will also be in line to compete for a possible cash award from the National Safety Council.

Judging is done by the division Safety Committee composed of selected NASA and contractor personnel.

JOHN PARSONS, left, receives congratulations from Bruce Vernier, former project manager, after winning the SAFE Suggestion Award.

Figge to Head California's Jaycees Senators Group

Fred Figge, program director, on the advanced air superiority fighter wing structure program within the Structures and Materials R & T Development, Aircraft Division, has been elected president of the Junior Chamber International Senators of California organization.

A senator is an honorary life membership sponsored by the Junior Chamber of Commerce. It is comprised of former Jaycees who have made outstanding contributions to the Junior Chamber of Commerce, but who have generally reached the mandatory age limit of the organization. Mr. Figge has been a senator since 1961.

According to Mr. Figge, there are about 400 senators in California, including President Richard M. Nixon, who was recommended for membership through his contributions as a former member of the Whittier Junior Chamber of Commerce.

LAGUNA FESTIVAL

The Northrop Recreation Club has made arrangements for employees to attend the Laguna Festival of Arts on Saturday, August 26, at the Irvine Bowl.

The club has obtained 92 reserved loge seats and will have two buses for transportation to the bowl with departure from Gate 5 at Hawthorne at 5 p.m.

Tickets are available at Aircraft Division Personnel Activities and will be sold only as a ticket plus bus package for $9.50.

RETIREE CLUB TRIP

The Northrop Retirement Club has scheduled a trip to Las Vegas on September 27, 28 and 29.

George Sanborn, tour chairman, states that the cost of the trip is $35 for two nights and three days which includes bus fare, hotel and all meals while in Las Vegas.

Travel Club Sets Tour Meetings

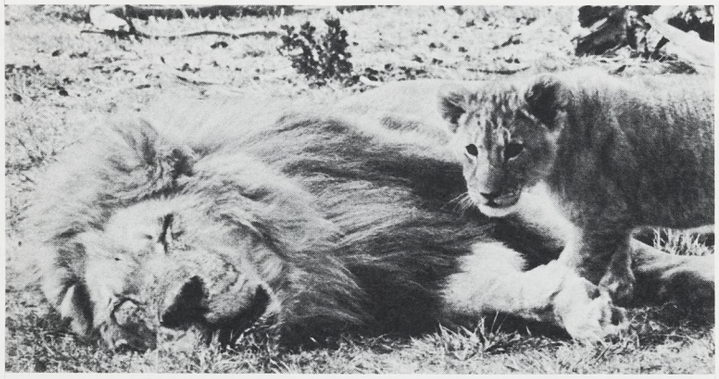
Northrop Travel Club has scheduled a meeting July 21 at the NRC Clubhouse at 8 p.m. to discuss two upcoming tours.

The first tour departs September 26 for 11 days to Alaska. Fly to Vancouver, then take an inland passage tour via many Ports O'Call to Skagway. Tour price, which does not include tax, is $449 for air fare, hotels, sightseeing and some meals.

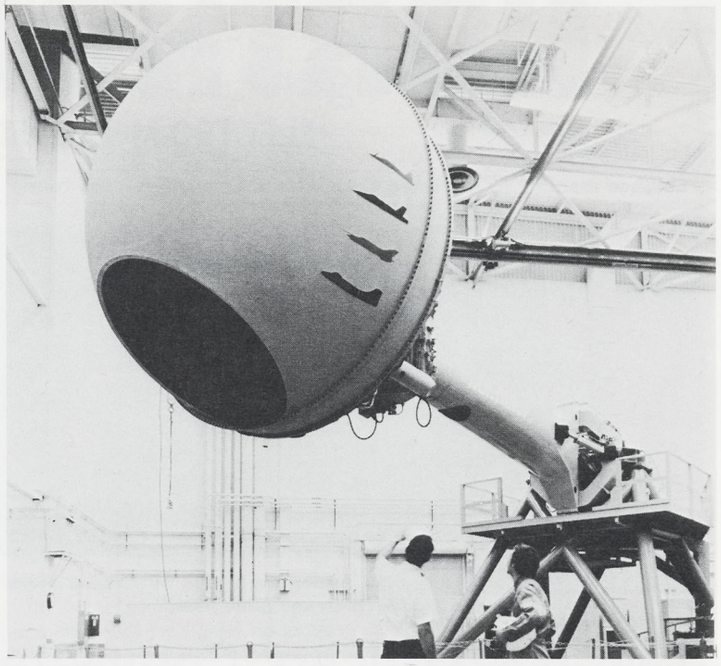
The second tour is the Caribbean cruise which departs on November 30 via New Orleans and Miami. On this tour there is a choice of a 10-day, 4-island tour for $469, or a 17-day, 10-island tour for $699, plus tax.

Another tour, always of interest to employees, is the annual Hawaiian Holiday. A kickoff meeting for this trip will be held at the Alondra Club on August 11 at 8 p.m. Price of the tour is $376.

NRC RECOMMENDS



A SAFARI CLUB Membership Card, available through NRC Personnel Activities, is your discount passport to a trip to Africa without leaving California. Lion Country Safari in Orange County is a unique "zoo" where the animals roam free and the human spectators are "caged" in their cars. In addition to seeing the free roaming animals, who often come right up and peek through the windshields at the strange people, your Safari Club card is good for unlimited use on all rides, including a tour down the Zambezi River and a jaunt in a paddle boat shaped like a hippo. Discount tickets through NRC are $4 for adults, and $2.50 for the kids.



SIMULATOR PERMITS 'FLYING' BEFORE PLANE IS BUILT

Northrop Flight Simulators Verify Designers' Ideas

Flying airplanes before they are built is an everyday occurrence at Northrop's Aircraft Division. The "flying" in this case is accomplished at the Flight Simulator facility, one of the most advanced in the world.

For more than a decade, Northrop scientists have been continuously furthering flight simulation state-of-the-art. The simulators they have developed have become an invaluable tool in determining the validity of aircraft designs.

Simulators, through the use of advanced computer systems, can accurately represent the motions of any aircraft. This can be accomplished even though the aircraft is still on the drawing board.

Northrop's family of simulators range upward in increasing sophistication and realism. They include basic fixed-base instrumented cockpits, a Rotational-Visual Simulator and a large Amplitude Flight Simulator.

The Large Amplitude Flight Simulator is unique in its combination of motion and wide angle visual cues. It has been used extensively for development and research programs related to the company's new A-9A close air support aircraft, P530 air superiority fighter, and other advanced aircraft designs.

Utilizing this simulator, Northrop can develop and have pilots evaluate the combination of aircraft flying qualities and control system characteristics by realistically "flying" the airplane while it is still in the design stage.

Modifications and improvements can then be made in the design process, giving added assurance that the airplane will fly as intended without major modification once it is built.

Pilots who fly the Large Amplitude Simulator sit in a cockpit enclosed in a large hemisphere. The cockpit and the hemisphere are gimbal mounted on the end of a 30-foot beam, providing roll, pitch and yaw movements. The beam is supported on a two-axis gimbal from which the pilot experiences vertical and lateral motions.

Reality of Flight

The reality of flight is further experienced by the pilot through the use of projectors which depict sky, earth and target images onto the inside wall of the hemisphere.

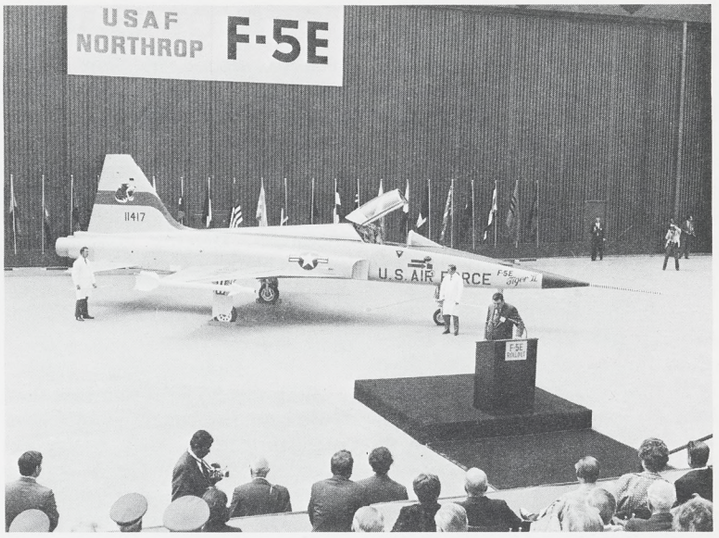
In the near future Northrop plans to use the Large Amplitude Simulator for pilot training effectiveness evaluation studies, including air-to-air combat and air-to-ground weapons delivery tactics.

Northrop's Rotational Three-axis Flight Simulator is designed to simulate profiles such as V/STOL takeoff and landing, air-to-ground weapons delivery and general low-altitude operations.

Northrop has also developed for NASA a Differential Maneuvering Simulator which is now in operation at NASA's Langley Research Center, Virginia.

Highlights Of The F-5E Tiger II Rollout

T. V. JONES AND GOVERNOR REAGAN DISCUSS THE F-5E



WELKO GASICH ANSWERS QUESTIONS FROM AUDIENCE

'CONGRATULATIONS TO ALL FOR A JOB WELL DONE'—MR. JONES

To All Northrop Employees:

All of us can take great pride in our new F-5E Tiger II International Fighter. The impact of this aircraft, both at home and abroad, will be felt for many years to come. Locally, the F-5E will help stabilize our employment and maintain Northrop's position as a world leader in the design, development and production of tactical fighter aircraft.

Nationally, the F-5E will make a major contribution to the U.S. balance of trade and offset the activities of a growing number of strong, nationalized industries in other countries who have challenged the United States' position as a world leader in aerospace technology and the sale of aircraft abroad.

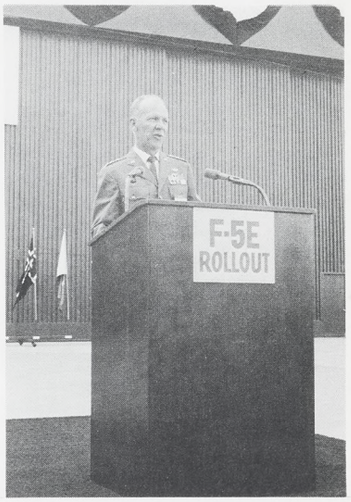
Overseas, and perhaps most importantly, the F-5E will serve as a symbol of the belief that advanced technology applied to the defense needs of Free World nations can make possible "peace through security."

This aircraft is a fitting tribute to the men and women of Northrop who devoted thousands of hours to its design, development and production.

My sincerest congratulations to all of you on a job well done.

Thomas V. Jones
President

EXPLORER SCOUTS



GENERAL STEWART

AFTER CEREMONY, CROWD TAKES A CLOSER LOOK

DIGNITARIES POSE BEFORE THE F-5E TIGER II

Search for Relics Turns Into Hunt for Cave of Gold

A search for the ancestral home of the Aztec Indians has turned into a search for a cave of gold for two Northrop men.

They are Don Bodewig, Aircraft Division, and Dick Hess, Electronics Division, who are associated with a third gold hunter, Cal Butcher, a Long Beach printer.

Originally the three began seven years ago trying to find traces of an Indian tribe that once lived in the Salton Sea area. This lost tribe was, according to a legend, the forerunner of the Aztecs of Mexico.

Their search ended when the area was closed to provide an Apollo test ground. In the meantime, they uncovered another legend of a lake in a lost cave. The lake supposedly was fed by an underground river that flows through a series of caves. According to the legend, gold was so plentiful around the shore of the lake that Indians used to pick handsful of nuggets to use for trading.

After a long search of the general area, one day they found an odd flat area while descending a mountain. Digging into it, they found lumps of calcium carbonate like that formed into stalagmites and stalagtites by water dripping into caves.

Hopeful Sign

With this hopeful sign that they were over the collapsed roof of a prehistoric cave, they began excavating. During the past two years, they have dug down 45 feet. The ground is getting looser and contains more calcium carbonate, indicating that they may break out soon into the main cave area.

Since they can't all get away at the same time, the three have been going up alone or in pairs whenever they can.

They work with light mining equipment, including small charge blasting. The work area is covered by a "tunnel claim" which permits them to dig 3,000 feet in search of minerals. Then if minerals are found, they can file an appropriate mineral claim.

Present indications are that they are definitely over a cave structure. Whether or not it is the legendary cave of gold is something that only further excavation will prove.

"If it is," they say, "that will be great. If it isn't, we will have uncovered an unknown cave anyway. The fun we've had and the healthful outdoor work will have made it all worthwhile even if we never get to fill our pockets with legendary gold nuggets."

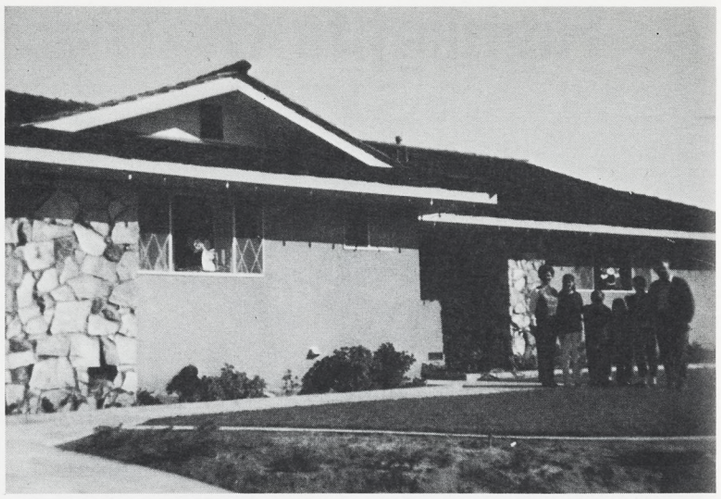
LOOKING DOWN into what may be the entrance to a fabled cave of gold is Dick Hess.

COUNCIL ELECTS JAMES E. WARE

James E. Ware, president of Northrop Architectural Systems, has been elected a director of the City of Industry Manufacturers Council.

The council, which replaced the Industry Chamber of Commerce in 1970, has as its goal the continued stimulation of economic growth of the city and the solution of problems common to the manufacturing community.

Programs are directed at personnel, purchasing, transportation and chief executives of the member companies, and encompass industrial development research, publications of specific interest and plant location assistance.



THE DI RISIOS AND THEIR DO-IT-YOURSELF HOME

DO-IT-YOURSELF

DiRisios Build Own Home

"Home, sweet home," means just that to Nick DiRisio, Electro-Mechanical Division, and his family. They recently finished a 12-year project to build their own home.

The dream house actually began in 1960 when Mrs. DiRisio began a list of things she wanted to incorporate in the design if it should ever get built. Nine years passed before these ideas could finally be used. They were not, however, lost years for they gave the DiRisios time to consider many plans before they began.

During these years of planning, they bought a lot in Olinda Village, Brea, and then Nick drew his own plans. It took him a year to complete the 17 drawings.

The plans were approved by the Brea Building Department and work began on June 8, 1969. A Northrop co-worker Bob Littell volunteered to help Nick level the ground with a borrowed transit. Nick then built his own form for his raised foundations.

Many Advisors

His sole previous experience was some building work he had done as a child helping his father, but lack of experience was no handicap. "Northrop has people with experience in just about every field," he said. "Whenever I had a problem, I was always able to find someone who could advise me on what to do."

As a result, he was able to do all the work from foundation to roof except the rough plumbing, plastering and cabinet work which he subcontracted.

Friends dropped around occasionally to lend a hand, but most of the work was done by himself, his wife, Jean, and their children, Fred, Debbie, Gary and Janet.

As for Nick, he worked three-and-a-half hours each night after he left his work at Northrop, using a spotlight for illumination. He worked an additional 10 hours on Saturdays and Sundays.

The house was sufficiently finished to move into before Christmas last year, but the DiRisios did not consider it really finished until all landscaping had been put in.

This was recently completed and a 12-year-dream of a truly "home, sweet home" has come true.

Dividend Is Paid By Credit Union

The Northrop Credit Union—which serves the Aircraft, Electronics and Electro-Mechanical Divisions, declared a semi-annual dividend at the June meeting of its board of directors, according to Credit Union President R. A. Lindsey.

The dividend is at the annual rate of six per cent and was paid to shareholders of record as of June 30, 1972. The amount of $258,873.34 was distributed to 9,840 shareholders. The dividend is the same as that declared by the Credit Union board of directors in December.

Mr. Lindsey said that increased earnings by the Credit Union would depend upon increased use of the Union by its members. He pointed out that Credit Union charges, in most instances, are less than those of other financial institutions. Thus, utilization of the Credit Union not only saves members money on their own borrowing, but also results in higher dividends which are returned to them.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Porsche, 1970 911T, chrome whls., elec. sun roof, 16,000 mi., $5,800. 213-374-2932.

Dune Buggy, Berry Mini-T, 1600 eng., many extras, $3,450. 213-783-6632.

Scout Wagon, 1969, r/h, wide whls., V-8, new tires & brks., $2,495. 213-378-1026.

Chevrolet, 1963 S.S. Impala, $250. 213-532-8289.

Dart, 1969, 2-dr. h/top, 225 cu. in. eng., p/s, p/b, $1,500. 213-860-3450.

Volkswagen, 1965 Squareback, new eng. & tires, AM-FM radio, $850. 213-375-9527.

Ford, 1954 cpe., auto. trans., $75. 213-324-2690.

Lincoln, 1964 Continental, full power & air, AM-FM, $645. 213-377-2552.

Corvair, 1963 Monza, auto. trans., radio, eng. o/hauled, $225. 213-869-1806.

Chevrolet, 1972 Nova, V-8, p/s, p/b, $2,500. 213-645-0685.

Porsche, 1960, 356 B/1600, reblt. eng., AM-FM, $1,700. 213-376-6489.

Opel Wagon, 1970 Super, 27,000 act. mi., $1,500. 213-370-9124.

Saab, 1968, 3-cyl., 2 cy., 2-dr., $550. 714-526-5358.

Pickup, Chevrolet, V-8, 283 cc, 60,000 mi., full cabover camper, w/jacks, 3-way refrig., $700 ea. or both for $1,300. 213-326-9258.

Porsche, 1963 S-90, reblt. eng. & trans., h/top & soft tops, $2,500. 213-672-6134.

Pickup, 1964 mod. C1100 International, w/ 10′ camper, hvy. duty equipt., $1,295. 213-329-8393.

Model A Ford, 1931, restored, $1,800. 213-835-7669.

Pontiac, 1965 Tempest convt., V-8, $500. 805-498-8550.

Station Wagon, 1971 Volkswagen 411, auto. trans., 85 h.p., $2,800. 714-774-9183.

Cadillac, 1967 Coupe DeVille, fully equipt., $2,000. 714-968-1470.

Opel, 1969 Kadette sport cpe., auto. trans., 102 h.p. eng., $1,175. 213-248-9274.

Camaro, 1968 Z-28 pkg., p/s, pwr. d/brakes, 4-spd., $2,000. 213-645-7715.

Fiat, 1970 850 Spider convt., 12,000 mi., $1,550. 213-375-5332.

Rambler, 1962 L head, auto., $95. 213-831-9545.

Mercedes, 1970 MBZ, 280 sedan, p/s, auto. trans., a/c, p/w, $6,400. 714-871-7625.

Plymouth, 1971 Roadrunner, custom blt., Mag. whls., stereo, 4-spd. stick, 383 cu. ft. d/ brakes, $3,000. 213-670-3820.

Volkswagen, 1966, r/h, $550. 213-670-3902.

Chevrolet, 1964 Nova, 2-dr., auto., $575. 213-676-4464.

Dune Buggy, VW, fiberglass, street legal, never run, $400. 213-324-3654.

Triumph, 1968 GT 6, wire whls., o/drive, AM-FM radio, $1,200. 213-545-4038.

Jeep, 1949 Willys CJ3A, new top, batt., carb., $800. 213-371-2392.

Datsun, 1970, 510 sedan, 2-dr., 4-spd., AM-FM radio, $1,400. 213-676-0392.

Rambler, 1964 American, auto., $450. 213-644-7088.

Chevelle, 1971 Malibu, p/s, p/b, a/c, 20,000 mi., $2,900. 213-376-5753.

Mercury, 1971 Marq. 4-dr. h/top, fact. air, many extras, $4,200. 714-544-2261.

Miscellaneous For Sale

Cartop Carrier, canvas, fits VW, $5. 213-328-3306.

Car Topper, Helite, makes tent & bed, canvas, $250. 714-544-2285.

Houseboat, 12 x 34, on Lake Mead, bltins, f/place, self-contained, sleeps 6, many extras, $6,000. 213-634-5978.

Table Lamp, Early American, made from old wine jug, $25. 213-325-5245.

Lot, Lake Havasu, R-1, lake view, $4,875. 213-377-9842.

Refrigerator, Westinghouse, 3 yrs. old, 18 cu. ft., frost free, copper, $200. 213-454-2675.

Aircraft Engine, Allison V12-1710, n.t.s.o., $500. 213-371-2531.

Miscellaneous For Sale

Motorcycle, 1966 Honda Super Hawk, 32 h.p., 338 cc, $275. 213-547-4141.

Water Bed w/frame, queen size, $25. 213-370-9037.

Camera, 35 mm, Canon IV-S2 w/50 mm f 1.8 lens & 135 mm f 3.5 lens, case & Universal viewer w/case, $110. 714-842-2649.

Ham Station, Galaxy V transceiver, remote VFO, spkr. console, extras, $225. 213-860-3793.

Strobe, Honeywell, 65-D, $30. 213-320-8845.

Trunk, old, $10. 213-672-1090.

Trailer Hitch, 550 lb. Tru-Pivot equalizer w/sway control, $35. 714-839-6959.

Play Set, child's, $20. 213-321-2674.

Pup, afghan, male, 14 mos. old, champ. sired, $200. 213-679-8307.

Engine, 327 Jeep, American Motors V-8, 40,000 mi., complete, $200. 213-671-3512.

Bedroom Set, king-sized, walnut, box springs & mattress, $275. 213-370-6348, 213-325-0788.

Dryer, elec., G.E., white, $75. 714-637-7662.

Used Brick, 10¢ ea. 213-376-4831.

Pool Table, slate, access., $450. 213-675-5449.

Panels, fiberglass, neutral, 424 sq. ft., $20. 213-833-6045.

Stove, Kenmore elec., $25. 213-370-6400.

Telescope, 3¼″ reflector, ½″ eyepiece, adjust. Barlow lens, $35. 213-645-4697.

Motorcycle, 1970 Triumph 650, 3,800 mi., $900. 213-329-0086.

Cassette, car stereo player, recorder, 8 tapes, 2 spkrs., $85. 213-672-1693.

TV Set, black & white, table model, $15. 213-377-4623.

Sofa, 8′, blue, $75. 213-377-8255.

Surfboard, 8′ Jacks, w/car rack, used twice, $75. 714-879-2569.

Picnic Table, redwood, benches, umbrella, w/stand, $20. 213-671-1617.

Wonder Horse, adjust., $8. 213-379-1873.

Snow Tires, 2 G70-14″, Gates Commando Special, $60. 213-672-8462.

Dinnerware, Havaland Paradise design, 8-pc. setting, many extras, $400. 213-831-9589.

Drafting Machine, Post, True Line, 24″, $60. Box 701.

Travel Trailer, 1971, 22′ Roadliner, fully self-contained, 12,000 B.T.U. roof-air, Honda rack, $3,300. 213-542-4624, 213-370-5020.

Pups, Weimaraner, 6 wks. old, male & female, $10 ea. 213-455-2369.

Movie Outfit, Bell & Howell, 8 mm, $75. 213-679-6982.

Typewriter, elec., Royal Empress, $125. 213-371-0645.

Climber, children's, $10. 213-675-8813.

Surfboard, 7′ Rick, $20. 213-374-8608.

Motorcycle, 1969 Yamaha, ATI-MX, 125 cc, gear box o/hauled, $300. 213-679-4863.

China Cabinet, Drexel, mahogany, 4′ x 6′, curved glass front, $250. 213-923-9957.

Umbrella Tent, w/side rm. & pole, w/2 cots, $49. 213-324-9491.

Carnival Game, fishing pond, 6-pl., $125, other games. 213-861-6404.

Boat, fiberglass, & trailer, elec. gears, 1961 mod., $100. 213-671-7127.

Oven, Radarange, Amana, 2 mos. old, $300. 213-675-7938.

Outboard Motor, Evinrude, 9½ h.p., never used, $450. 213-457-9600.

Record Player, stereo, auto. w/cover, McDonald, $35. 213-327-4267.

Refrigerator, Westinghouse, white, 13 cu. ft., $50. 213-679-5212.

Rocker, swivel-type, black naugahyde, $25. 213-675-1000.

Dining Table, maple, 6 chairs, $100. 213-375-9553.

Divan, $75, other items. 213-375-1756.

Tires, 4 Firestone, whitewall, E-70-14 wide ovals, $80. 213-675-2514.

Camper Shell, Gem top, fits 1965, '66, '67 El Camino, $150. 213-377-3552.

Sofa, 6′, matching chair, curved Lawson style, $65. 213-670-2564.

Exercise Bike, $22. 213-326-5731.

Counter Top, Formica, 2′x11′, $10. 213-645-7972.

Sailboat, 14′ Super Satellite, trailer, boat cover, many extras, will furn. hitch, $800. 213-392-1447.

Airplane, 1948 Stinson 108-3 station wagon, hvy. case Franklin 165, 500 smoh, gyro panel, Mark II & Alpha 200, $4,000. 805-947-1026.

Miscellaneous For Sale

Washer, Maytag, & dryer, yellow, $300. 213-377-7065.

Davenport, colonial, spice tweed, $65. 213-326-3135.

Cocktail Table, 2 end tables, glass tops, $125. 213-644-3922.

Orchid Collection, w/greenhouse, 8x10, $75. 213-842-1405.

Motorcycle Helmets, orange or yellow, med. size, $10 ea. 213-326-0895.

Bicycle, Stingray, $25. 213-325-1190.

Ski Boat, 16′ 70 h.p. Merc., lge. whl. trailer, $995. 213-323-3801.

Calculator, Curta Mk II portable, 15-digit accum./multiply reg., case, manual, $100. 805-495-7550.

Motorcycle, 1969 Bultaco, 250 cc, Pursang Mx, $450. 213-769-7513.

House, 2-bdrm. & small rm., lge. lot, $24,000. 213-374-2076.

Mobile Home, 2-bdrm., awning, stor. shed, 10′x55′, in Gardena, $3,995 furn., $3,495 unfurn. 213-532-7652.

House, 2,500 sq. ft., 4-bdrm., 3 bath, lge. living-dining rm., f/place, fully landscaped yd., Mesa P.V., $64,500. 213-377-2881.

House, 3 bdrm., 1¾ baths, central a/c, 27′x12′ alum. covered patio, many extras, $32,950. 714-521-0206.

House, in Hollypark-Gardena, 3-bdrm., 2 baths, bltins, attach. 2-car gar., covered patio, $28,500. 213-323-8213.

Acreage, 2½ acres, 2 mi. from Crystalaire Country Club Ests., near Pearblossom Hwy., $11,500. 213-430-1952.

Lot, improved, Big Bear Pines, $750 dn., 7½% on bal., $1,995. 213-325-5609.

Mobile Home, 10x50 2-bdrm., cpts., patio cover, stor. shed, in four-star park, $3,000. 213-925-1934.

House, 2 yrs. old, 2-story, 4-bdrm., 2 baths, f/place, bltins, cpts., dps., Cerritos, $32,500. 213-860-3022.

Wanted to Buy

Power Edger, not over $25. 213-679-0888.

Bricks, new or used, need approx. 650. 213-675-6206.

Motorcycle, any make or model, reasonable. 213-532-6687.

Free (To Be Given Away)

Dog, 1 yr. old, shots, brown & white female, house broken. 213-756-1812.

Kittens. 213-644-2840, 213-376-9054.

Dirt. 213-379-3153.

Rentals Offered

Cabin, 2-story, Big Bear Lake, sleeps 12, f/place, all-elec., boat dock, $125 wk. 714-893-0410.

Camper-Pickup, 1971 Ford, sleeps 6, $100 wk. & 5¢ mi. 714-544-0730.

Cabin, Big Bear Lake, Moonridge, 3-bdrm., 2 baths, kit., utens., f/place, family only, $125 wk., $50 wk/end. 213-326-7232.

Cottage, Ocean Bch., San Diego, near Mission Bay, $80 wk. 714-826-2007.

Vacation Home, Bass Lake, $150 wk. 213-374-3702.

Vacation Home, Lake Arrowhead, 3-bdrm., 2 baths, walk to lake, $140 wk., $65 wk/end. 213-377-3817.

Mountain Home, Big Bear City, 2-bdrm., bath, f/place, furn. incl. linens, $35 wk/end, $100 wk. 213-823-1788.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40 wk/end, $70-$90 wk. 213-868-8040.

House, on 5 acres, Big Bear Lake, 2-bdrm., f/place, furn., all utils., sleeps 8, $100 wk., $45 wk/end. 213-325-8267.

Cabin, Lake Arrowhead, family only, $125 wk., $55 wk/end. 213-831-1745.

Rentals Offered

Apt., 2-bdrm., unfurn., bltins, cpts., dps., $145. 213-426-4060.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

Cabin, near Arrowhead & Running Springs, sleeps 4 or 5, $35 wk/end, $95 wk. 213-370-7105.

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, $125 1 wk., $200 2 wks. 213-375-2255.

Motor Home, 1971 Pace Arrow, 20′, sleeps 6, a/c, self-contained, ins., $150 wk., $50 wk/end. 714-846-1858.

Apt., 1-bdrm., unfurn., in Redondo Bch., cpts., dps., bltins, gar., 1 mo. free rent, $150. 213-831-0453.

Apt., 1-bdrm., cpts., dps., range, oven, close to Northrop, unfurn., $130 mo. 213-325-5705.

Cabin, Big Bear, on golf course, sleeps 12, $40 wk/end, $100 wk. 714-595-3968.

Condominium, Palm Springs area, furn., 2-bdrm., pool, $100 wk., $60 wk/end. 213-327-8994.

Duplex, unfurn., upper, 2-bdrm., walk to Northrop, $155 mo. 213-676-1985.

Cabin, Big Bear City, 2-bdrm., 1-bath, 3 yrs. old, $40 wk/end. 213-320-6486.

House, 2-bdrm., guest rm. in rear, lge. fenced yd., dble. gar., bltin stove & refrig., f/place, close to Aircraft Div., $250. 213-676-6390.

Studio Apt., 2-bdrm., 2-bath, sub. gar., adults, $225 mo. 213-670-6084.

Rentals Wanted

Concrete Mixer, small, for 2 mos. 213-375-1685.

House, 3-bdrm., fenced yd. & gar., must be close to El Segundo or Santa Monica high schools, will lease. 213-823-7701.

Child Care

Child Care offered, my home, El Camino College area. 213-676-6502.

Personals

Thank you for your thoughtfulness & kind expressions of sympathy at a time when it was deeply appreciated. BERL PIERCE & HELLEN TOTH.

Thanks to everyone at Northrop & NRC for the cards, calls & visits during my recent eye surgery. J. R. MELTON.

To all my friends at Northrop thank you sincerely for the cards, flowers & condolences during the illness & demise of my brother, Vernon. W. H. BUSTER.

Ride Wanted, 8 a.m.-4:42 p.m., from Ravenspur Dr., Palos Verdes, to Plant III, Aircraft ext. 2175.

To my many friends at Mariposa, my sincere appreciation for the floral tribute & the many kind words of sympathy at the recent death of my mother. DICK TEUBERT FAMILY

Wish to join ride pool, 8 a.m.-4:42 p.m. or 8:15 a.m.-5 p.m., East Anaheim to Hawthorne, Corporate Lab Bldg., NCL ext. 4591, 714-630-1629.

Ride Wanted/offered, 8 a.m. - 4:42 p.m., Santa Ana-Orange-Tustin area to Hawthorne, Aircraft ext. 4681, 714-544-2261.

I want to thank the people of Dept. 3436, for the floral tribute & expressions of sympathy at the time of my mother's death. MELVIN M. COOK

For Sale or Trade

Plymouth, 1948 cpe., w/289 Ford V-8, auto. trans., $325 or trade for Jeep station wagon, VW bus, or pre-war sedan. 213-374-5878.

Cabin Cruiser, 28′ Trojan, near new eng., small dn. & assume $70 mo. pymt., $5,300 or trade equity. 213-768-6244.

Golf Club, set, $75 or trade for 10-spd. bicycle. 213-821-5516.

Stove, Sears Kenmore elec., self-cleaning, 1969, $60 or trade for gas stove. 213-770-0081.

NORTHROP NEWS

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Correspondent—Ventura Division ..... **Marian Robinson**
Correspondent—Architectural Systems ..... **Dale Albee**
Correspondent—Precision Products Department ..... **Peter Goodall**

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JA Closes With Profit

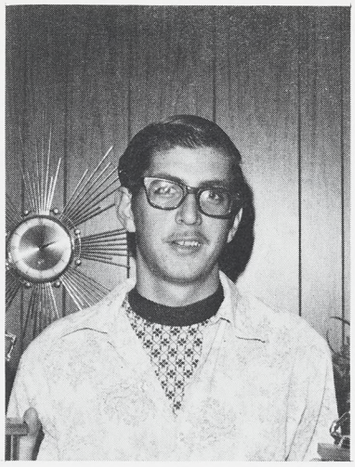
The Northrop-counselled TOPCO Junior Achievement Company closed its business year by liquidating assets and paying investors the maximum 10 per cent dividend permitted by Junior Achievement rules.

In addition, a special sales bonus check was presented to each of the five top salesmen, and a contribution was made to the Junior Achievement Scholarship Fund from TOPCO's profits. The remaining profits were divided among all TOPCO members, according to Betty Duba, production adviser.

Junior Achievement is a nationwide program in which high school students volunteer to learn the fundamentals of the American free enterprise system by organizing a company, financed by stock sales, and then manufacturing a product to sell for profit or loss. The Electro-Mechanical Division has participated in the program for the past 11 years.

TOPCO was organized in October with Steven Jolitz as president, Bernie Parsons, vice president, manufacturing; Gary Roberts, vice president sales; Anita Seaward, corporate secretary; Sue Howard, treasurer, and Donna Rae Stuart, administrative assistant.

Division advisers were Ray Ebbert, management; Dudley Hosea, financial; Betty Duba, production; Harry George, sales, Herb Felix, alternate adviser, and Bob Boostrom, division coordinator.



DAVE TAYLOR

Dave Taylor Wins Sports Trophies

Dave Taylor, son of Northrop's Bob Taylor, received his school's Most Valuable Player trophy in both basketball and track. This is the first time in the school's history that one player received the award in more than one sport.

At fifteen, Dave is an all-around athlete. He was captain of the football team on which he alternated between quarterback and right end. He also captained the basketball team, playing center, and was leading scorer and rebounder.

In track he placed first in low hurdles, second in high hurdles and fourth in long jump in the Mt. Baldy meet of all schools in the Pomona Valley. He holds his school's record in low hurdles, high hurdles and long jump, and was a member of the relay team that set the school record.

Environmental Impact Study To Be Made at L. A. Airport

The Los Angeles Department of Airports announced that it had been authorized to conduct contract negotiations with the Electro-Mechanical Division's Environmental Systems group for a study to determine the impact of future airport development plans.

The study would be conducted using the guidelines established by the National Environmental Policy Act of 1970.

This includes the impact of future developments on such environmental factors as air pollution, water pollution, and noise pollution.

In addition the study will investigate such ecological factors as impact on flora, fauna, natural resources, historical monuments, parks and recreation areas, and effects on displaced persons.

Other portions of the study will be related to solid waste disposal, social aspects, land use and economics.

The initial contract will be to define program plans and to establish cost estimates to implement Phase II of the study. Phase I is expected to take about 90 days. Phase II will require about one year.

Henry W. Wedaa, who made similar environmental impact studies for St. Louis, Missouri, airport, and the extension work at Ontario International Airport, Ontario, California, will conduct the study for the Environmental Systems group.

THOMAS THEWS IS EAGLE SCOUT

Thomas Thews, 14-year-old son of Maury Thews, Materiel, has received his Eagle Scout award, the highest in Scouting. Thomas has a six-year perfect attendance record with the Scouts, including three in the Cub Scouts where he earned the highest Cubbing award, the Arrow of Light.

Thomas Thews

Thomas comes from a Scouting family. His father is a district commissioner. His mother is on the District staff, one brother is a Star Scout, another brother is in the Cubs and his sister is a Girl Scout. Thomas is currently serving as an instructor with Troop 650 Cypress.

CHARLES GARCIA, 9, displays his "Snoopy" stitchery exhibited in the recent "Carousel" exhibit of arts, crafts and hobbies at the Anaheim Convention Center. Charles, son of the division's Sefie Garcia, made the design and needlework himself.

PICNIC PLANS PICK UP STEAM

The program for the NRC Family Picnic August 20 has been approved, according to Roy Steinestel, special events chairman.

"There will be a free hot dog and hamburger, free soft drinks, ice cream and a wide variety of novelty games and contests," Mr. Steinestel said.

Especially for the children the committee will provide a ferris wheel, a clown, a special kid's show, fun games, and a Moon Bounce. For everybody there is a large swimming pool, and a lake for boating and fishing.

The picnic is set for Silver Lakes Picnic Grounds, Norco. Admission will be by ticket. Tickets are 25 cents for Northrop employees and immediate members of their family. Guest tickets are $1.75.

OSHA Explained to Groups

Occupational Safety and Health Act (OSHA) orientation has been completed for all supervisory personnel of the Electro-Mechanical Division, according to Al Van Der Most, Safety administrator.

Some supervisory personnel received the orientation in connection with the Management Conference held at Newport Beach in January. The remainder attended special sessions just completed at the division.

Under OSHA both employer and employees have certain responsibilities. Each employer is required to furnish his employees a place of employment free from recognized hazards. Each employee is required to comply with all safety and health standards, rules and regulations that apply to his own actions and conduct.

Mr. Van Der Most said that the division's safety and health program has always been directed toward the accomplishment of all activities in a working environment free from recognized hazards and that many of the new standards had been incorporated in the design of existing facilities, equipment and operating procedures prior to the enactment of OSHA.

Fifty-seven employees attended the final orientations, including visitors from Northrop Corporate Labs and the Electronics Division.

Mr. Van Der Most said that any employee having questions about OSHA or a concern about safety and health in his work area may be assured of receiving a prompt and proper response to his inquiry by calling the Safety office, ext. 1001.

Vic Bray Moves To Eastern Office

H. V. (Vic) Bray, manager of Marketing at Anaheim is moving his office to the division's Eastern Regional Office which is co-located with the Northrop Corporate Field Office at 1701 North Fort Myer Drive, Suite 1208, Arlington, Virginia.

From this location Mr. Bray will continue to manage the division's field marketing activities.

BLOODMOBILE

The Red Cross bloodmobile is set for August 3 from 11:45 a.m. to 4:30 p.m. in the demonstration room, Y-1, according to Esther Jones. Call Miss Jones, ext. 377, for details.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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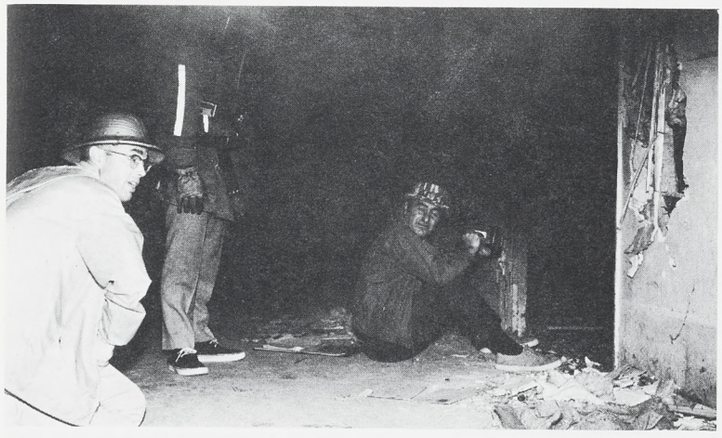


BILL ARMSTRONG, right, checks for fire's center. Dr. R. D. Tooley is at left and fireman, center, is half hidden by smoke.

WHERE'S THE FIRE?

Armstrong Aids Firemen

"When a fire truck pulls up to a burning building how does the crew find the fire?"

This was a problem presented by Anaheim Fire Chief Jim Riley to William Armstrong, Northrop Electro-Mechanical Division engineer on loan to Anaheim as a science and technology advisor. The advisory program, jointly sponsored by NASA and the National Science Foundation, provides a means of applying aerospace technology to solving urban problems.

In the problem presented by Fire Chief Riley, firemen often find a burning building so filled with smoke that they cannot rapidly locate the actual source of the fire. This causes delays that enable the fire to spread.

Mr. Armstrong took the problem to Northrop. Under the technology transfer portion of the program the company provides backup support to Mr. Armstrong in his work with the City of Anaheim. Dr. R.D. Tooley, Electro-Mechanical Division, and Robert Bishop, Electronics Division, suggested the use of handheld infra-red heat imagers to pinpoint the center of the blaze. Such devices can penetrate smoke.

They also determined that such a device had been built by Hughes Aircraft Company and demonstrated to Anaheim police as a means of vision enhancement from night-flying helicopters, but had never been tried as a fire-fighting aid within buildings.

Arrangements were made by Mr. Armstrong for a practical demonstration test to be conducted by Robert Casper of Hughes. Test fires were made within a house in Santa Ana Canyon, using charcoal, cardboard boxes and a smoky mixture of kerosene and oil.

In addition to Mr. Armstrong, Northrop was represented at the tests by Dr. Tooley and John Branzetti. William Butcher, chief of Research, Anaheim; Paul Hayes, Anaheim coordinator, Disaster Service; Fire Chief Riley and Police Chief David Michel were also present.

The Hughes PROBEEYE, used in the tests, uses a scanning

(See ARMSTRONG, page 6)

VEGAS TRIP SET

Another "Swingin' Vegas" trip is planned for the weekend of September 29 to October 1, according to Jack Kinzer, NRC Travel commissioner.

"For a price tab of $35 twin or $50 single the tour provides three days and two nights at the Mint Hotel, two breakfasts, gift coupons, and souvenirs," Mr. Kinzer said.

"Our last two trips were complete sell-outs. So book early to insure a seat for yourself when our special Greyhound bus pulls out at 6 p.m. on Friday night," he added.

Army Finds Use for Its Obsolete Missiles

The Army's U.S. Missile Command has found an inexpensive way to get launch data by using obsolete missiles.

The Electro-Mechanical Division is sharing in the work.

According to a report by the Army, the Missile Command has begun a program with multi-rail launches that is mobile, can be reloaded mechanically in minutes and can carry and fire four Little John missiles.

It is being used to improve launcher technology and to keep the Army abreast of conventional launch techniques.

Northrop - Huntsville designed, fabricated and adapted the launcher to the chassis used by the Shillelagh missile system.

Northrop, under contract to the Missile Command, delivered the vehicle to the Army at a recent ceremony at Redstone. Frank W. Lynch, Electro-Mechanical general manager and Corporate vice president, delivered the equipment to Dr. John L. McDaniel, director for Research Development, Engineering and Missile Systems Laboratory.

Plans call for test crews to use the launcher at White Sands Missile Range, New Mexico, later this summer.

Maj. Hal Craig, the Army's project officer for the program, said the program is an inexpensive way to get launch data.

"We're using missiles that are available, but no longer in service," he said. "And we're using a vehicle already in existence."

Lockheed Rep Ends Tour Here

J. A. Reickerd, Senior Product Assurance representative for Lockheed Missiles and Space Company at the Electro-Mechanical Division, has returned to Sunnyvale, California, in July after a two-year tour here.

He was succeeded by J. D. Campbell, who came to Northrop from the Seattle area where he was Lockheed's Product Assurance representative with Sundstrand Data Control in Redmond, Wash.

The Lockheed Product Assurance office here is concerned with the MTRE (Missile Test and Readiness Equipment) built by Northrop for the Polaris-Poseidon program.

In announcing his departure, Mr. Reickerd wrote in a letter to Ralph Dix, manager of the Northrop Polaris/Poseidon Program: "No matter where I turned, I found each and every one of you attentive and willing to cooperate. I would like to commend Gordon Campbell, Frank Miller, R.P. Clute, R.L. Shumway, Harry Nuffer and Frank McNabb for their patience and congeniality."

FIRST of the division's employees under the Anaheim School District's Work Experience Education program is 18-year-old Virginia Dunn, who is working as a trainee telephone operator. Later she will gain experience in other administrative positions. Students who participate in the program are selected by their schools and recommended to participating companies.

TICKETS READY

Tickets for those who have made reservations for the annual NRC family picnic are now ready at Personnel Activities, according to Roy Steinestel, special events chairman.

A limited number of tickets are still available for those who failed to make reservations.

The picnic will be held this year at Silver Lakes, Norco, and the program has been designed to fit in something for all ages.

JACK BAILHE, NORTHROP REPRESENTATIVE in Thailand, left, and Glenn R. Lord, president of Northrop Airport Development Corp., center, meet with Niam Tong Dow, permanent under-secretary of Singapore's Ministry of Communications, during the signing of a $30 million major upgrading project for Singapore International Airport.

NADC to Design Upgrading For Airport in Singapore

Northrop Airport Development Corp. has been awarded a $1.2 million contract to plan and design the $30 million major upgrading of Singapore International Airport.

Mr. Yong Nyuk Lin, the government's minister for Communications said in Singapore that NADC was selected after a competition in which 10 of the world's leading airport consulting firms were invited to submit proposals.

The contract covers the immediate phase development of the airport. NADC will update and refine the existing master plan, and prepare detail designs and specifications for new passenger terminal, new cargo terminal, new fire station and a hangar for jumbo jets, as well as associated ramp areas.

NADC, with headquarters in Washington, D.C., has been involved during the past year in various types of airport planning, design and feasibility studies at numerous locations, including St. Louis, Bangkok, Tehran, Taipei, Djakarta and two sites in the U.S. Trust Territories of Micronesia.

NADC was selected last month by Thailand's National Executive Council to negotiate a contract for the development of a new international airport in Bangkok. It is estimated that the first phase of this new international airport will be completed in five years and will cost approximately $100 million.

Glenn R. Lord, president of NADC, said the award of prime management responsibility for the Singapore Airport to Northrop Airport Development Corp., after a worldwide competition, was added recognition of the company's ability to apply proven systems analysis techniques to this field.

San Diego Office Has Anniversary

Northrop's Ocean Engineering office in San Diego celebrated its first birthday July 13. The office was established in July 1971, under the management of W. B. Buckbee, to support Northrop Services Inc.'s Deep Submergence Systems support of the U.S. Navy in San Diego.

The Ocean Engineering office supports the Navy in two major programs. One is the Deep Submergence Rescue Vehicle which the Navy is building for submarine rescue work at depths up to 5,000 feet. The second major program is the Deep Dive System, Mark 2 which is concerned with developing techniques and equipment for saturation diving.

Members of the Ocean Engineering office, in addition to Manager Buckbee, are: Dolly Atherton, secretary; W. B. Bennett, C. P. Buckley, J. Drucker, R. F. Flynn, Daphne Hospins, T. S. Lee, J. C. Lillywhite, C. B. Linton, R. Quinn, E. A. Smith, J. A. Vaughn, R. K. Viertel, L. M. Wearda, R. R. Wimmermark and D. R. Paradise.

Northrop Export Potential Praised by Aviation Week

Aviation Week Magazine, in an editorial on the problems of declining aerospace exports, praised Northrop's programs aimed at high export potential.

The magazine pointed out that aerospace sales had been one of the principal elements in maintaining a positive U.S. balance of trade during the past decade.

"This year," Editor Robert Hotz wrote, "aerospace exports will begin a drastic decline that cannot be arrested or reversed without a drastically revised government policy . . . Only new and effective policies quickly forthcoming will allow the inherent strength of U.S. high technology to be decisively felt in the international marketplace . . ."

As an example of what must be done to reverse the declining trend, Mr. Hotz said, "We must provide more preceptive vision and more effective support in early research and development phases aimed at products or product variants with high export potential. The Northrop F-5 and P-530 programs are excellent examples of what can be accomplished in this area."

Foreign sales of Northrop's new F-5E International Fighter are expected to have more than a $1.5 billion impact on the U.S. balance of trade over the life of the contract, Northrop President Thomas V. Jones reported when the F-5E Tiger II was rolled out in June.

Olson Will Make Puerto Rico Study

A noise contour study to determine the effects of airport noise pollution on a proposed hotel site in San Juan Puerto Rico will be made by Olson Laboratories' Acoustical Engineering Department, according to Gordon Bricken, manager of the department.

The contract, with PFZ Properties, will relate to Vacia Telega, a 3,000-acre development to replace the present San Juan hotel district. The contour study will show the impact and density of noise pollution from San Juan International Airport as it affects the proposed development area.

ORDERS BACKLOG RISES

Northrop Reports Earnings

For the six months ended June 30, 1972. Northrop Corporation reported net income of $5,081,000 compared with $6,557,000 for a comparable six month period of 1971. The earnings were equivalent to $1.13 per primary share compared to $1.38 for the comparable period of last year. On a fully diluted basis, the earnings were $1 per share compared with $1.18 last year. Northrop changed from a fiscal to a calendar year basis in 1972.

The company's current order backlog is approximately $734 million versus $490 million at a comparable point in 1971.

Six months net sales for the aircraft, communications, electronics, and construction firm amounted to $267,626,000 compared with $282,208,000 for the first half of last year.

Net earnings for the three months ended June 30, 1972 were $2,728,000 compared with $3,852,000 for the same period last year, and $2,353,000 for the previous quarter of 1972. This was equivalent to 61 cents per primary share against 82 cents in the second quarter of last year and 52 cents in the first quarter of 1972.

Fully diluted earnings were 54 cents per share against 69 cents a year ago, and 46 cents in the first quarter of 1972.

Net sales for the second quarter totalled $154,320,000 compared with $138,570,000 last year, and $113,306,000 for the first quarter of 1972.

"We believe the substantial increase in order backlog is an indication that the company's overall business prospects are on a substantial upturn," Thomas V. Jones, Northrop president said. "The indications are that the increase in earnings from 52 cents per share in the first quarter to 61 cents per share in the second quarter represents the beginning of a new trend," Mr. Jones said.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Microminiaturization Packs Circuits Into Small Wafers

Dr. Klaus Schuegraf, the lead scientist in the Microelectronics Laboratory at the Northrop Corporate Laboratories, pointed to a thin disc of silicon measuring 1½ inches in diameter.

"That single piece of silicon," he stated, "contains 500 identical integrated electronic circuits and each complete circuit is comprised of a large number of transistors, diodes, capacitors and resistors. Before the advent of microminiaturization, we would have needed a storage space as large as a four-drawer filing cabinet to hold the vacuum tubes and wiring needed to construct just one of these microcircuits."

The large-scale integrated circuits (LSI) described by Dr. Schuegraf are frequency synthesizers which are being fabricated as laboratory test devices to determine feasibility of advanced communication concepts developed by other scientists in the Information Sciences Laboratory.

One of Many

The frequency synthesizer is but one of many LSI circuits being designed and fabricated in the Microelectronics Laboratory. Other projects include prototype development of circuitry for the Mark III Voice Warning System and development of a quartz accelerometer. Both are products being manufactured by the Electronics Division.

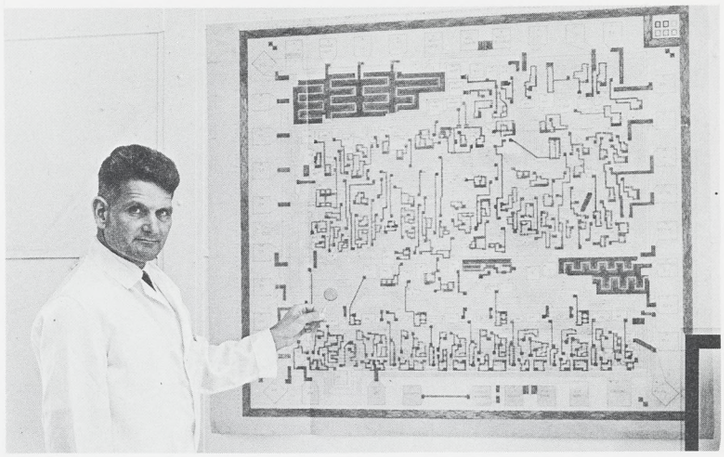
Microminiaturization allows the design of electronic systems to develop more sophisticated, versatile and reliable equipment than was possible a few years ago while reducing volume, weight, power and cost at the same time.

Electronic equipment presently designed with LSI circuitry would have been too bulky to carry in a plane and too expensive and unreliable to build using vacuum tubes or discrete solid state components.

The final product, the LSI circuit, is so small that it must be viewed through a microscope during wiring and testing. However, these circuits begin as large layouts drawn by design engineers or by computer aided technique. These layout drawings are then photographed and reduced to 1/100 of the original size. This photo-reduced "mask" is then rephotographed through a high resolution microscope lens and reduced another 10 times, to arrive at the final mask which is about the size of a pinhead. This small mask is then "step and repeated" (exposed, moved, exposed) over another photographic plate which is the same size as the silicon wafer. Then this mask which represents one LSI circuit is used to make a final mask which has 500 of these same circuits. It is this technique which enables the laboratory to make 500 identical LSI circuits on one silicon wafer.

To fabricate an LSI wafer, four to five different masks are needed. Each mask must be overlapped with the other with exacting precision and then photographically printed on the silicon wafer. With 500 identical circuits and 1,000 to 2,000 components in each circuit, the final 1½ inch silicon disc will contain about one-half million electronic components.

Silicon is used as the material to make microcircuits because it is a semiconductor (not a good conductor—not a good insulator) which can be changed into a conductor of electrons by adding small amounts of impurity atoms at the places you want conduction to occur. The impurities are generally boron or phosphorous atoms depending on the transistor you want to make. The impurities are diffused into the silicon in a high temperature furnace. Each impurity spot becomes a transistor on a diode and they are connected together to form a circuit by evaporating thin lines of aluminum between the components.



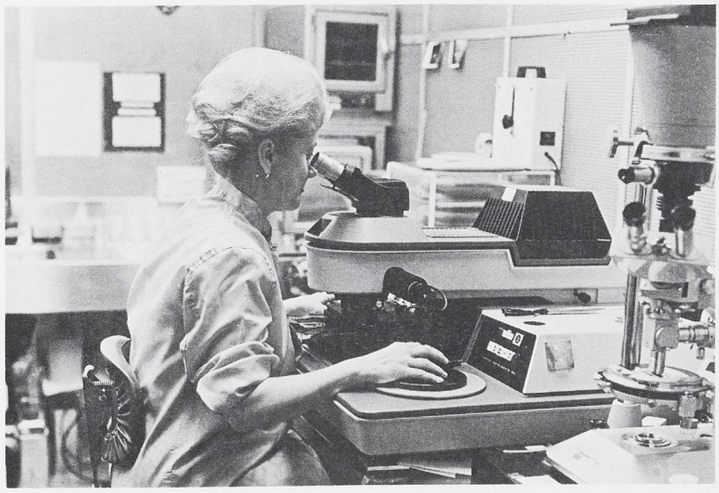
DR. SCHUEGRAF shows layout drawing which will be reduced to 1/100th of actual size.

Testing

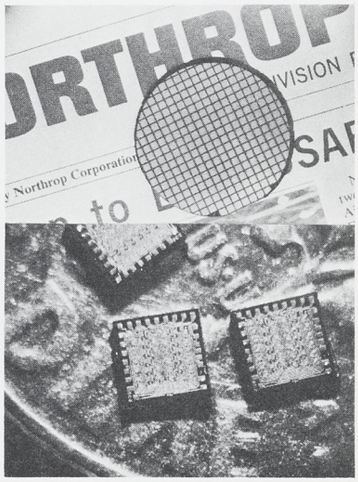
After the circuits are made, they are tested. All 500 will not be good circuits. The good ones are cut out of the wafer and placed in individual packages or cans. The lead wires and packages are often many times larger than the circuit they serve. Aluminum lead wires are bonded to the microcircuits using ultrasonic waves.

It takes about a week to fabricate a single wafer, after the work of making the masks has been completed. This may seem like a long time, but, it would take a single electronic technician working eight hours a day without breaks or holidays more than 11 years to do the same job. This figure assumes that it would only take him one minute to wire each of the one million components which are fabricated on the 1½ inch piece of silicon.

The Microelectronics Lab is continually reviewing ideas for new LSI circuitry which might have a significant impact on the sales of Northrop electronic systems. Further information can be obtained regarding the capabilities of the laboratory by contacting Dr. Schuegraf and Dr. Robert Malm, director of the Information Sciences Laboratory at the Northrop Corporate Laboratories.



ERNA DILLARD, processing technician, uses microscope to assemble minute parts of the integrated circuit.



THE TINY size of the wafer is shown in comparison to a page of the Northrop News, top. Below, "chips" representing a single square each in the wafer above rest on the edge of a dime to show the minute size of the finished integrated circuit.

Massey Retires; Merrell Moves to Northrop Pacific

Loyal Massey, plant manager, Northrop Pacific, Inc., has retired after 30 years with Northrop. He will be succeeded by Frank Merrell, former manager, Industrial Engineering at the Electro-Mechanical Division.

Northrop Pacific, located in Long Beach, California, builds aircraft flooring and stringer clips for commercial aircraft, including the Boeing 747 and 707, and is also involved in the new Northrop F-5E Tiger II program.

The company was founded as a Northrop subsidiary in 1967 and has been guided since its founding by Mr. Massey. His successor, Mr. Merrell, is a 17-year Northrop veteran.

EIGHT GRADUATES of the first High School Involvement Program (HIP) are returning to school after working full-time at Northrop during the summer. Shown above, during a discussion of HIP are Ralph Carey, instructor coordinator; Linda Garrett, Dana Grant, Karen Thomas, Ray Nadeau, instructor; Dwayne Day, Jackie Johnson, and Lourdes Medeles.

POSES SECURITY PROBLEM

Airlines' Baggage Search

As a result of recent hijackings, several airlines are not permitting hand-carried baggage, briefcases, or packages on their flights; or they are requiring a complete search of all items, including the opening of any packages. This must be considered when the hand-carrying of classified material is anticipated, since such packages may not be opened nor their contents be disclosed to unauthorized persons.

Additionally, such material must remain in the individual's personal custody at all times and cannot be "checked" separately or inside their baggage.

To avoid inconvenience or costly delays in such instances, it is suggested that, if at all possible, required classified documents or hardware be mailed in advance of your trip.

If this is not feasible, contact the airline with which you intend to travel, determine their current policy, and if necessary, make special arrangements with the reservations supervisor.

Holiday Coming

Another long holiday weekend is in store for Northrop employees when Labor Day, Monday, September 4, will be observed as one of the company's paid holidays.

The next scheduled holiday will be Thanksgiving Day, which will be observed this year on Thursday, November 23. It will be followed by the traditional long Northrop Christmas holiday.

Northrop Hams Take Part In Relay League Field Day

Radio hams from the Aircraft and Electronics Divisions took part in the 1972 Amateur Radio Relay League Field Day, according to Dick Mirko, NRC Radio Club vice president.

The ARRL Field Day consists of a contest between nationwide clubs and amateurs to set up emergency-powered remotely located radio stations and competing to obtain the greatest number of contacts in a given competitive class.

Participants and their call letters were Charles Jensen, WB6BZJ (field day chairman); Gerry Roberts, K6YPT; Doug Marston, WB6JCD; Don Moore, WA6BJJ; Spud Monahan, K6KH (station custodian); Bob Cobb, W6CFM (club secretary); Mr. Mirko, K6HRT; Don Fletcher, W6LYY; Stu Carp, WA6NLQ; Jeff Kincaid, WN6BIL; Dave Wagner, WN6BYP; Jim Jones, WB6WWU (club president); Pat Fletcher, XYL W6LYY; Bill Horn, WA6STM and Stoddard Jennings, WB6ARV.

The participants reported an outstanding success in making contacts and on the basis of previous years feel that they will place in the top 20 per cent when the final point scores are announced in about three months.

HAMS WHO joined in the ARRL's field day are, front, from left, Dick Mirko, Jeff Kincaid, Dave Wagner, Doug Marston, Jim Jones and Bill Horn. Back, from left, Pat Fletcher, Don Fletcher, Stu Carp, Bob Cobb, Don Moore, Charles Jensen and Gil Jones.

Who's Who in West Honors Leibert For His Work With Retarded Children

Peter Leibert, manager, Machinery Performance Monitoring, Electro-Mechanical Division, has been included in the 1972-73 edition of Who's Who in the West, an exclusive listing of outstanding professional people in the western section of the United States.

Mr. Leibert was included in the listing because of his work with the California Association for the Retarded. He has been working with the association for 12 years, and was recently elected first vice president.

The association is a major sponsor and supporter of planning, legislation and public actions that permit a closer approach to normalization for the retarded of all ages. This principle of normalization approaches the development of the retarded by integrating them into the normal educational and social environment.

This practice is fast replacing older methods in which the retarded were treated as unusual or special cases and were isolated from the adaptive, motivational and learning influences of normal society.

In his new office, Mr. Leibert will be a principal leader in the association's legislative and public information programs for extending and maintaining the principle of normalization throughout the state.

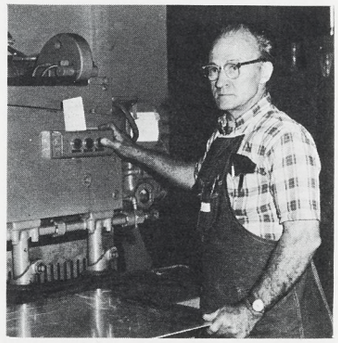
NRC Commissioners Have Their Day

"For three hundred and 64 days a year the NRC commissioners work to assure the various clubs under their jurisdiction function smoothly, maintain the participation of their members, and offer some activity of interest to every employee. But the 365th day is reserved as an evening of recreation for them."

These words from Don Kohler, Aircraft Division Industrial Relations representative, describe the annual dinner dance for NRC commissioners. This year it was held aboard the Princess Louise.

Marie Tully, NRC manager, Aircraft Division, said, "These dinner dances are one way of thanking the people who spend so much of their spare time for the club."

Aircraft and Electronics Division employees interested in working with NRC are invited to call ext. 2486 at Aircraft Division and ext. 425 at Electronics Division.



FRANK WELTE, SR., is Northrop Architectural Systems' senior employee. Mr. Welte, shown here operating a shear in the brake shop, recently marked his 32nd year as a machine operator with Northrop.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Cadillac, 1968, Fleetwood Brougham, stereo, Cruise Control, extras, $2,750. 213-547-3746.

Mercury, 1971, Marq. Brghm., 4-dr. h/top, fact. air, many extras, $4,200. 714-544-2261.

Volkswagen, 1970 Pop-top, tape, tent, extras, $2,850. 213-323-9586.

Chevy II, 1966, h/r, auto., $500. 213-598-3552.

Mustang, 1967, vinyl roof, h/top, auto., 289 4 bbl.,p/s, $850. 213-644-7613.

Pickup, Chev., 1966, ¾-ton, & 10′ o/head camper, fully equipped, $2,800. 213-675-3254.

Mustang, 1969, a/c, mag whls., extras, $1,500. 213-329-1861.

Station Wagon, 1967 Pontiac Tempest, V-8, auto., p/s, p/b, $1,000. 213-832-6394.

Chevrolet, 1969, Malibu, p/s, r/h, $1,700. 805-492-1155.

Dodge Van, 1972, Gypsy Conversion Camper, w/elec. refrig., $200 dn., $5,800 bal. 213-635-9944.

Buick, 1962, Special, convt., runs good needs new top & paint, $200. 213-375-5009.

Rambler, 1962, American, $95. 213-831-9545.

Chevrolet, 1962, 2-dr., 75,000 mi., stick, $275. 213-295-1750.

Pickup, 1962 Chev., ¾-ton, 283 eng., 3-spd., Lazy Daze camper, $1,500. 213-644-7040.

T-Bird, 1956, completely restored, $2,000. 213-756-1812.

Camper Van, 1970 VW, recent eng. overhaul, $2,200. 714-524-1376.

GMC Bus, reblt. diesel eng., auto. trans. $2,300. 213-370-3821.

Chevrolet, 1964 Impala, 4-dr. h/top, p/s, r/h, $500. 213-322-3319.

MGTF, 1954, reblt. eng., $1,900. 213-288-3432.

Chevrolet, 1969 Chevelle SS, auto., p/b, p/s, a/c, 2-dr., $2,150. 213-773-9680.

Volkswagen, 1966, r/h, $795. 213-377-5003.

Lotus Elan, 1967 coupe, $1,600. 213-376-9054.

Ford Pickup, 1956 ½ ton, a/c, extras, $1,100. 213-530-4709.

Volkswagen, 1968, camper, pop top & tent, $1,850. 213-869-2673.

Pontiac, 1970 Le Mans Sport, p/s, auto., radio, $2,800. 213-421-1300.

Model A pickup, $1,500. 213-323-5746.

Camaro, 1967, 37,000 mi., auto., radio, 6 cyl., 4-track tape, $900. 213-376-6806.

Station Wagon, 1967 Chevrolet Caprice, a/c, $1,000. 213-530-3046.

Cadillac, 1958 Coupe Deville, 77,000 mi., $900. 714-879-9736.

Ford, 1970 Torino, full pwr., take over $112 mo. pymts., $2,000 approx. bal. 805-259-1840, 213-361-7217.

Datsun, 1972 mod. 1200, 4-spd., console, r/h, $1,595. 714-962-5166.

Corvair, 1963 Spider, w/turbo charger, $225. 213-679-0888.

Chevrolet, 1960, 2-dr., h/top, p/s, $350. 213-671-5977.

MGB, 1967, wire whls., lug. rack, $800. 213-821-3691.

Comet, 1961, $100. 213-371-7940.

Volkswagen, 1957, camper van, w/1964 motor, $425. 213-391-4636.

Volkswagen, 1968 Squareback, r/h, $1,050. 213-375-9397, 213-375-2091.

Volkswagen, 1969, radio, $900. 213-542-6745.

Volkswagen, 1972 Squareback, sunroof, radio, $2,300. 213-542-5163.

Opel Wagon, 1970 Super, 28,000 mi., $1,300. 213-370-9124.

Volkswagen, 1971, 28,000 mi., r/h, $1,600. 714-821-1685.

Lotus Europa, 1971, low mileage, $4,500. 213-759-7885.

Miscellaneous For Sale

Bunching Tables, wedge-shaped, oiled walnut, $35 pr. 213-545-7149.

Miscellaneous For Sale

Dining Room Set, Danish walnut, table w/2 leaves, 6 chairs, lge. china & small cabinets, $275. 213-541-3073.

Drapes, antique satin, 2 sets, gold, tangerine, $45 ea. 714-531-6738.

House, N. Westchester, 4-bdrm., 1¾ bath, lge. covered patio & det. rumpus rm., $42,000. 213-670-4702.

Drum Set, 5 incl. cymbals & cases, $125. 213-377-2544.

Minibike, Taco, 3½ h.p., new motor installed, $65. 213-377-1074.

Dining Room Set, 6 chairs, hutch, table & chair pads, Early American cherrywood, $300. 213-327-4478.

Motorcycle, 1967, 125 Sears Allstate, $100. 213-631-2926.

Motorcycle, 1969 350 Honda, $325. 213-372-6305.

House, 3-bdrm., 2 baths, paneled office, Hollypark, cpts., dps., bltins, f/place, $31,950. 213-532-8072.

Home, Lake Havasu, 1,400 sq. ft., 2¼ acre view lot, fully furn., $27,500. 714-637-0683.

House, 3-bdrm., family rm., 2 baths, w/w cpts., f/pl., bltins, air cond., patio cover, Anaheim, $31,500. 714-776-9599.

Console Stereo, 8′, Spanish Mediterranean, 1970 Continental Solid State Stereo Record & AM/FM radio, $275. 213-941-3804.

Tent, 10½ x 11 Continental style, nylon alum. frame, cases, $75. 213-375-3790.

Kittens, 2 Siamese, 2 part Siamese and part Burmese, avail. Sept. 10, mixed, $5; purebred $10. 213-679-8095.

Sofa, convt. dble. bed, $50, other items. 213-641-8355.

Auto Radio, Blaupunkt AM-FM-SW pushbutton, never used, $90. 213-530-0379.

Boat Trailer, 1972 Vanson, 20′, never used, $500. 213-378-7676.

Motorcycle, 1966 650 Triumph TR6, $850. 213-644-3587.

Tires, 4 Firestone Deluxe Champion tubeless, 6.45-14, $30. 213-534-4068.

Engine, Hemi 52 Desoto, $25. 213-674-9347.

Ironer, Ironrite, $25. 213-291-0025.

House Trailer, 8′ x 26′ Bell-Air, 1 bdrm., bath, $750. 213-330-8653.

Boat, 16′ Runabout, big W trailer, 65 h.p. Merc. Coupe Top, bait tank, extra gas tanks, $1,000. 213-754-2020.

Acreage, Palmdale-Lancaster, 2½ acres, easy terms, level roads, $3,990. 213-376-6205.

Dining Table, white Italian Provincial, 2 leaves, 4 blue uphol. chairs, $150. 213-347-4196.

Houseboat, 12x34, on Lake Mead, bltins, f/place, self-contained, sleeps 6, many extras, $6,000. 213-634-5978.

Camper Potti, Corlon portable, w/chemical flush & holding tanks, $50. 213-530-3432.

Sail Boat, 24′ foot Dolphin 104, fully equipped, 6 bags of sails, many extras, $7,500. 213-823-8642.

Studio Couch, w/cover, $10. 213-645-7972.

Boat, 15′ Nomad, & trailer, $150. 213-328-7989.

Wheels, 2 chrome, slotted, near new tubeless tires, 15″x5.60″ 4 ply, $65. 213-833-3944.

Cemetery Lot, Inglewood Park in El Portal plot, 2 grave sites, w/dble. internment, $1,000. 714-847-6455.

Mini Bike, Sears 3½ h.p., kick start, $125. 213-348-9928.

China, Noritake, old, 10-pc. place setting, extras, $60. 213-372-7875.

Piano, Upright, modern refinished, $180. 213-696-7529.

Wedding Ring, Marquise solitaire, white gold, Tiffany mounting, $300. 213-644-3742.

Typewriter, IBM Selectirc, elite type, $245. 213-254-3251.

End Tables, 2 walnut, $10 ea. 213-541-3000.

Dining Room Set, table, 5 chairs, buffet, mahogany, $150. 213-675-4239.

Dress, for mother of bride or groom, size 10, $20. 213-371-2229.

Coin Collection, 51 assorted silver dollars, $150. 213-644-6164.

Accordion, Contello, 120 bass, case $85. 213-374-8645.

Generator, 900 W., Honda, 1971 mod., 6 hrs., $200. 213-375-9811.

Bicycle, girl's 20″ Take-A-Part, $35. 213-676-3592.

Airplane, 1960 Comanche, 600 s.mo.h., auto flight, full gyro panel, IFR equip., $11,000. 714-532-1510.

Saddle, leather, 16″, $90. 213-774-1900.

Love Seat, $35. 213-372-0536.

Miscellaneous For Sale

Bedroom Set, dble., box springs, mattress, night stand, extras, $125. 213-320-9496.

Stove, 2-burner, hvy. duty Coleman, $13. 213-323-7171.

Drafting Machine, Bruning w/scales, $65. 213-645-1274.

Home, in Hawthorne, 3-bdrm., pool, 1¾ baths, lge. den, lanai rm., covered patio, dble. lot, $61,500. 213-676-3589.

Box Springs, youth size, 15-yr. guarantee, $35. 213-327-4176.

House, 3-bdrm., 2 baths, dps., cpts., lge. lot, block fence, $29,900. 213-677-0182.

Motorcycle, Honda CB 450, 213-376-3998.

Dishwasher, white portable, auto., Lady Kenmore, used 1 yr., $100. 213-377-0783.

Tent Trailer, Apache, $250. 213-328-3306.

Wall Phone, oak, $55, other items. 213-673-4322.

Meat Freezer, $40. 213-939-8053.

Rabbit, & cage, feeders, $1.50. 213-679-5177.

Hide-A-Bed, green tweed cover, $15. 213-672-5649.

Patio Set, white metal 24″ round table, 2 chairs, $10. 213-371-5130.

Aquarium, 20-gal. Metaframe show tank, access., $18. 213-722-6213.

Motorcycle, 1969 H.D. Sprint, SS, 350 cc, $575. 213-833-7306.

Camera, Leica III G, Elmar, 50mm, access., $150. 213-869-6508.

Camera, Pentax, many access., $250. 213-376-5648.

Tape Recorder, Concord, auto., reverse, 776, $135. 213-324-8618.

Corner Hutch, birch, 41″w x 24″d x 77″h., $150. 714-637-4194.

Lot, California City, R-1, $2,900. 213-293-5888.

Motorcycle, 1970 Yamaha 350, $400. 805-492-4245.

Welder, Birdsell 190 AMP. AC, 50′ ext. cord, w/welding equip., $300 or sell sep. 213-322-5136.

Engine, 1964 361 Dodge, & fact. air cond. $100. 213-375-8460.

Outboard Motor, 9½ h.p., 1972 Evinrude, $450. 213-457-9600.

Cartridge & Tape Deck, auto. FM, $35. 213-325-2512.

Dining Room Chairs, 4, Mediterranean, $8 ea. 213-860-3022.

Motorcycle Helmet, never worn, meets 2-90-1-66 stds., $25. 714-633-0328.

Occasional Chairs, 2, coral & gold, $10 ea. 213-670-2564.

House, 2-bdrm., corner lot, No. Inglewood, $18,500. 213-672-1090.

Color Processing Kit, CP-5, 2, $5 ea. 213-327-4267.

Aquariums, 15-17½-6½-8½ gal., stands, equipt., incl., $100. 213-329-7382.

Sewing Machine, portable Singer zig-zag, $60. 213-372-7841.

Acreage, 2½ acres, Antelope Valley, E. side, water & elect. to prop. cor., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Pup, German Shepherd, AKC, female, 11 wks., $75. 213-329-5644.

Wedding Gown, George Mauer orig., size 10, $50. 213-375-4312.

Motorcycle, 1969 Hodaka Ace 100, 5 spd., $300. 213-377-3552.

Acreage, 1 1/10 acres, Oak Creek Canyon, Ariz., 100 yds. to Oak Creek, $7,500. 213-923-9957.

Sailboat, 24′ sloop, 25 h.p. inbd. motor, 3 dacron sails, hoist gear, sleeps 3, $4,000. 213-379-5652.

Acreage, 2½ acres, Little Valley Lassen County, $4,000. 213-645-2711.

Coffee Table, Alabaster marble top, & stand, $30. 213-675-1000.

Box Spring & mattress, full size, Hollywood frame, $35. 213-326-3135.

Baby Items, 3 pcs., $20. 213-780-7476.

Aquarium, 26 gal. stand, Dinaflow filter, htr., $60. 213-320-8845.

Trailer, 1966 Apache Buffalo, sleeps 6, bltin stove, htr., awning, $600. 213-860-3793.

Condominium, 2-bdrm., den, 2 baths, shag cpts., gym, saunas, swim pool, tennis cts., golf course, rec. hall, $34,950. 213-370-6348, 213-325-0788.

Range, gas, drop-in, hood, white w/black glass, $125. 714-637-7662.

AM Stereo FM radio, comb., Garrard record changer, 58″ long, 28″ high, hand-rubbed oiled walnut, $200. 213-674-1400.

Miscellaneous For Sale

Dishwasher, auto. GE, white, chop block on top, semi-portable, $100. 213-459-1045.

Wanted to Buy

Answer Phone System. Box 802.

Free (To Be Given Away)

Gravel, pea size, to anyone willing to remove it. 213-325-2637.

Pups, Spaniel-type & mother, 12 mos. old. 213-391-5046.

Kittens, 3 mos. old. 213-454-1540.

Pups, Beagapoos, beagle & poodle comb. 213-675-3931.

Wooden Windows, used, 24″ x 36″ & larger. 213-379-4517.

Rentals Offered

Apt., 1-bdrm., furn., covered car ports, near Northrop, $145 mo. 213-821-9110.

Cabin, Lake Arrowhead, close to lake & village, patio, f/place, $80 wk., $30 wk/end. 213-845-5949.

Apts, furn., pool, rec. rm., carport, laundry rm., walking distance to plant, single, $125, 1-bdrm. $150. 213-644-1074.

Home, Bass Lake, $150 wk. 213-374-3702.

House, unfurn., 4-bdrm., 2-story, den, swimpool, near all schools, Carson area, $320 mo. 213-835-7669.

Cabins, Big Bear Lake, completely furn., $18 day, $90 wk. 714-866-2548.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

Studio Apt. 2-bdrm., 2-bath, sub. gar., adults, $225 mo. 213-670-6084.

Cottage, Ocean Bch., San Diego, near Mission Bay, $80 wk. 714-826-2007.

Cabin, Big Bear, Moonridge, 3-bdrm., 2-baths, kit., utens, f/place, family only, $125 wk., $50 w/end. 213-326-7232.

Cabin, Big Bear Lake, Moonridge, f/place, sleeps 4, family only, $75 wk., $30 w/end. 714-528-2810.

Rentals Wanted

House, 1 or 2-bdrm., unfurn. $115 or $140 mo., have 1 dog, close to Northrop. 213-677-5033.

Child Care

Child Care Wanted, Monday-Friday, 7:45 a.m. to 5 p.m., infant 6 mos. 213-947-1347.

Babysitting, afternoons or evenings, So. Bay area. 213-371-8167.

Personals

My sincere thanks for the kind expressions of sympathy on the recent passing of my father. BERNIE SCHIER.

I want to thank all my Northrop friends & co-workers for an enjoyable retirement party & gift. JOE SMITH.

Thanks to all my very good friends who helped make my retirement party a happy one. P. W. SMITH

We wish to thank our many friends for the wonderful retirement party, gifts & good wishes. HOWARD & ANNE ALTMAN

I wish to express my appreciation to all my friends at Northrop for making my retirement party an event to remember. R. B. TOMPKINS

Share rides 2 or 3 days wk., So. Torrance area to NCL Bldg., 8 a.m.-4:42 p.m. or 8:15 a.m.-5 p.m., Aircraft Div. ext. 2065, 213-325-5198.

I wish to express my sincere appreciation to my Northrop friends for the retirement party & presents. PAUL VON ESSEN

Ride Wanted, part time, 8 a.m.-4:42 p.m., from Westminster to Plant I, Aircraft Div. ext. 1211, 213-772-1896.

Many thanks to my friends for the cards, flowers & expressions of encouragement concerning my disability, J. S. "ARMY" ARMSTRONG.

Ride Wanted, 7 a.m.-3:42 p.m., Artesia Blvd. & Inglewood Ave. area to Plant I, 213-379-0930.

Ride Wanted, 7:30 a.m.-4:12 p.m., Del Amo & Cherry or Del Amo & Carson, Long Bch. to Mariposa, ext. 6411, 213-537-0757.

Ride Wanted, or car pool, 8 a.m.-4:42 p.m., P.V. Dr. North & Rolling Vista Dr. to Engg. Science Ctr., Aircraft Div. ext. 2313, 213-530-3666.

For Sale or Trade

House, 2-bdrm., concrete fence, near school & shopping, $23,950 or trade equity for mobile home. 213-532-6687.

Camper, 8′ Merced, Cabover, stove, 16-gal. water tank, 75-lb. ice box, $695 or trade for VW of equal value. 213-370-6400.

Washer, auto. G.E., 2 yrs. old, white, $75 or trade for stereo tape. 213-632-2642.

Olson Needs Cars for New Test Program

Olson Laboratories at Anaheim needs 200 cars of various makes in 22 different models to participate in a new test program sponsored by the California Air Resources Board.

"We are inviting Northrop personnel to volunteer cars for the program," Arlene Forker of Olson Labs, said, "The tests will take only about four hours. Cars can be dropped at the Northrop-Olson test facility behind Y-2 and picked up before the close of work that day."

All volunteer cars will be brought up to manufacturers' specifications, and in addition each volunteer will receive a $10 check for participating.

Purpose of the 18-week program is to determine if disconnecting the vacuum advance on automobiles — a method of reducing pollution — will result in engine overheating on hot days. Miss Forker emphasized that the test would not involve the volunteer cars in any severe strain and would have no adverse effect on the automobiles.

"They will be run in a controlled temperature chamber on a chassis dynamometer to simulate 50-mile-per-hour steady state operation on a load equivalent to three per cent grade. The test chamber will be conditioned to simulate driving conditions in 80, 90 and 100 degree ambient (surrounding air) temperatures.

Volunteer cars will first be adjusted to manufacturers' specifications and then will be given a base line temperature test with vacuum advance connected. This will be followed by an identical test with vacuum advance disconnected.

Cars needed include certain models of Buick, Cadillac, Chevrolet, Chrysler, Dodge, Ford, Mercury, Oldsmobile, Plymouth, Pontiac, American Motors, Volkswagen, Toyota and Datsun.

LLOYD CUSHMAN CLOSES CAREER

Fellow employees of Lloyd Cushman from Northrop's Deep Submergence Systems Program offices in Anaheim and San Diego joined together recently in a picnic to honor his retirement after more than 20 years with Northrop.

Mr. Cushman, who has been active on the DSSP program since 1966, served as supervisor for its Systems Analysis unit. Prior to this, he was supervisor of Hydra programs in Advanced Underwater Systems at Hawthorne for nearly seven years. This followed an earlier stint as supervisor of the Cost Effectiveness unit of Systems Analysis.

Two of his most interesting assignments at Northrop, Lloyd says, were on involving observation of cold-weather aircraft performance which took him to Alaska 15 years ago, and an assignment involving development of Snark missile facilities at Presque Isle, Maine.

Lloyd and his wife have taken up residence in a mobile home park in San Marcos, Calif., and look forward to extensive travel. They hope to journey to such places as Mexico City and Alaska.

Safety Committee Is Organized

The division Safety and Health Committee has been reorganized and new members added, according to Al Van der Most, Safety administrator. The new arrangement gives the committees a balanced membership of supervisory and production personnel.

Members of the Orangethorpe committee are: Cal Seay, chairman; Eddie Paul, Bob Russell, Lacy Husted, Walt Hoppe, Joe Williams, Whity Pieper, Jack Kinzer, Doug Cooke, Arnold Monreal, co-chairman; Ted Cheney, Peter Dostel, Ward Young, Lynn Russell, Roy Steinestel, Jaime Lopez, and Hawk Hawkins.

Members at Page Court are Bill Tucker, chairman; Boyd Williams, co-chairman and Jackie Delaine.

"Members of the committees are identified by 'Green Cross' badges," Mr. Van der Most said. "They will make weekly safety and health inspections of the plant areas to identify possible hazardous conditions and unsafe work practices.

"In addition, periodic training sessions devoted to improving knowledge and skills in the areas of safety and health as it applies to the working environment will be scheduled for the new members. This will include the importance and the operation of OSHA, the Federal Occupational Safety and Health Act."

NRC'S HORTICULTURE CLUB's plant beautification efforts include construction of a brick planter in front of the cafeteria. They plan to fill it with flowers and shrubs later. Shown at work are Nick DiRisio, foreground, who contributed his masonry talents, assisted by, left to right, Barbara Hughes, Bernie Shay, Tony Dixon, Sefie Garcia and John Barth. Club members Barbara Hughes and Betty Duba are in charge of the cafeteria beautification program. (Photo by Joe Saline)

Grizel Develops Control for Stringer Painting Process

An idea developed by Leo Grizel will permit automatic painting control for different length stringer materials.

Automatic devices to control painting are commercially available, but must be used with the same kind and length of materials. Mr. Grizel's development can be used over the entire range of division stringers which range from two feet to 30 feet in length.

The new development employs a photo-electric cell and information storage on tapes. The cell reads the length of each part and its position on the conveyor system. This information is recorded on tape which controls four automatic paint guns. The resulting accuracy of turn-on and turn-off operations provides a great saving in paint as well as freeing an operator for other duties.

A unique feature of Mr. Grizel's development is that only five feet of tape is needed for handling varied length material in contrast to 50 to 60 feet of tape employed in conventional control systems.

Mr. Grizel was assisted by Don Eckert who made the methods engineering and installation of the painting control system.

ARMSTRONG

(Continued from page 1)

beam technique to convert infrared heat radiation into a picture. Wearing life support equipment, the test crew made repeated penetrations into the heavy smoke. At the conclusion of the tests, Fire Chief Riley commented on the way the tests developed.

"The favorable test results achieved in this typical structural fire environment has significant application to the fire service," Chief Riley said.

"It provides more rapid and safe identification of fire seat in situations where smoke concentrations exclude normal visual reference; permits locating and rescuing fire victims under similar heavy smoke-heat situations; and permits positive identification of residual hot spots inside walls during mop-up or overhaul operations."

WESCON COMING

WESCON — A Western Electronics Show and Convention sponsors its 21st annual presentation of "What's New" in the world of electronics opening September 19 at the Los Angeles Convention Center.

Products and system demonstrations by more than 300 companies will be on display.

Robert Anderson, president of North American Rockwell Corporation, will be featured luncheon speaker.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

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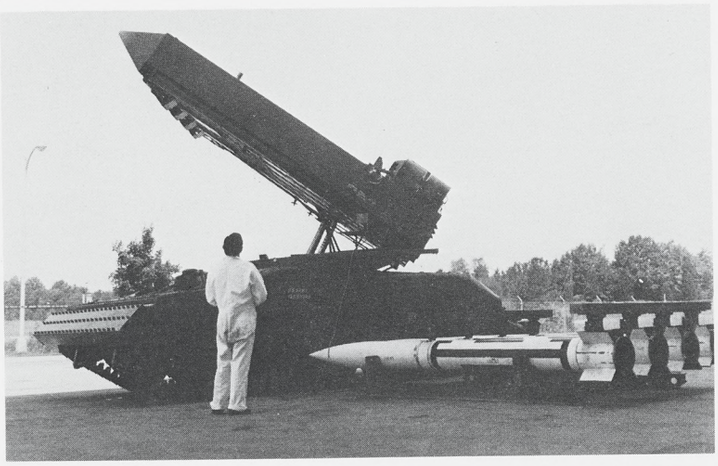


NORTHROP'S DON HAYNES ELEVATES MISSILE RESEARCH LAUNCHER

POLARIS SUB

Completes Milestone Patrol

The U.S. Navy recently completed the 1000th Polaris-Poseidon-carrying submarine patrol — a string of deterrent patrols initiated in November 1960 when the USS George Washington deployed with the 1,200 nautical mile Polaris A-1.

The Polaris Poseidon missiles are built for the U.S. Navy by Lockheed Missiles and Space Company, Sunnyvale. The Electro-Mechanical Division shares in the program, producing the missile checkout equipment (MTRE) which has been credited with materially contributing to the success of the Polaris Poseidon program.

In a letter to Frank W. Lynch, division general manager, D. A. Stuart, LMSC general manager, made note of the 1000th milestone.

"From November 1960 to the present, none of these 1,000 patrols was ever aborted or delayed for reason of missile shortages.

"This outstanding record of accomplishment cannot be credited to any single individual or company. All of us are responsible. Performances like these can be achieved only when each member of the team does his job in a professional, dedicated manner. You have consistently demonstrated that we are such a team."

In transmitting Mr. Stuart's re-

(See POSEIDON, page 6)

Research Launcher Fires Test Missile

A modified Little John missile was successfully fired at White Sands, N.M., Sept. 11 by an Army Missile Research Launcher built by Northrop Services, Inc. for the U.S. Army Missile Command, Huntsville, Ala.

The launcher permits a low cost approach to demonstration of the technical feasibility of multiple rocket launching from an armored vehicle, according to Burl Ervin, manager, Tactical Systems.

"The present project is a continuation of the MARS — Multiple Artillery Rocket System — program for which the division prepared study reports in 1970," Mr. Ervin said. "And is in line with the Department of Defense's approach to prove practicality of a design concept prior to large dollar expenditures."

Northrop Services, Inc. located in Huntsville directed the design, fabrication, assemby, checkout and delivery of the launcher. It was delivered to the Army Missile Command by Frank W. Lynch, Electro-Mechanical Division general manager, at a recent ceremony at the Army Redstone Arsenal, Huntsville. It was received by Dr. John L. McDaniel, director for Research Development, Engineering and Missiles Systems Laboratory.

The launcher has four completely enclosed tubes that have a top rail to hold the missile until it is fired. Protective doors are installed to protect the delicate terminal homing devices mounted on the Little John rocket.

"A completely self-contained loading capability is present on the launcher," Mr. Ervin said. "By extending the parallel booms on the side of the launcher, then dropping the steel belts to hook onto the guide channel, the operator can lift all four missiles simultaneously. By retracting the parallel booms all four missiles

(See LAUNCHER, page 6)

DR. JOHN L. MCDANIEL, left, and Frank Lynch at turn-over ceremony for Army Missile Research Launcher.

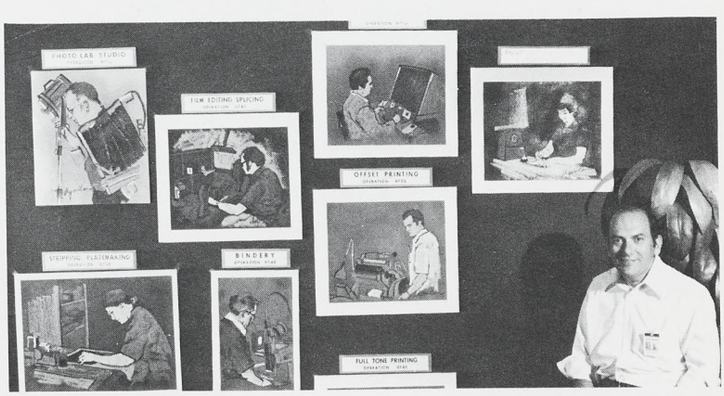
Aguilar's Art Provides Reproduction With a Beautifying Management Tool

Arnold Aguilar's artistic talent has given the Graphics section a management tool that not only identifies operation functions, but which contributes to beautification of the Reproduction work area.

The project is a series of sketches primarily designed to both pictorially and numerically identify the various operations performed within the Reproduction group. It was initiated by Gus Grijalva as part of a program of housekeeping and efficiency improvement.

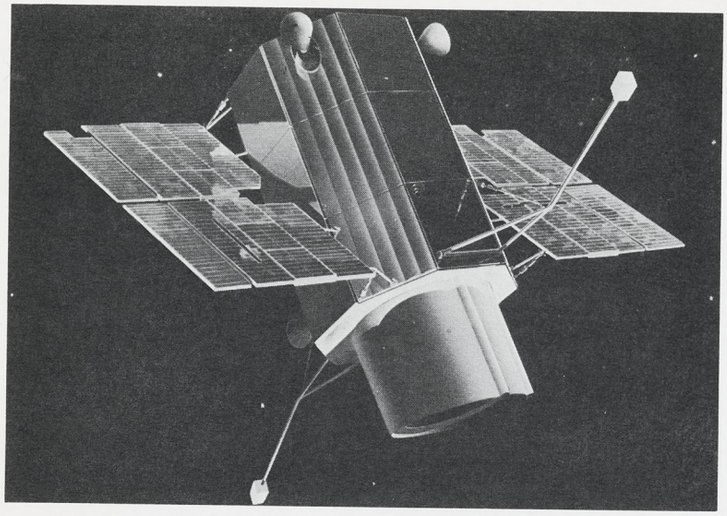
These operation numbers are used to control costs and must be correctly entered on timecards to provide accurate records. Mr. Aguilar's paintings provide the added visual relationship to assigned numbers that help reduce inaccuracies.

Mr. Aguilar volunteered to make the paintings at home in his spare time. He worked with oil pastels to make portraits of Reproduction personnel performing their work operations. He has now completed all the portraits except one, and he isn't sure he can do it justice. It is himself.



ARNOLD AGUILAR AND SOME OF HIS PAINTINGS

ZERO in



COPERNICUS — NASA'S ORBITING ASTRONOMICAL LAB

NORTHROP ASSISTS

NASA's 'Big Eye in Space'

Northrop technicians had an important role in the highly successful launch of NASA's Copernicus orbiting telescope.

Copernicus is a 4,900 pound orbiting astronomical observatory satellite which contains a 32-inch diameter telescope. It was placed in orbit 460 miles above the earth on Aug. 21 by an Atlas-Centaur rocket from Cape Kennedy, Florida.

The "Big Eye in Space" was designed to operate above the earth's atmosphere which greatly restricts clarity and resolution of earth-bound telescopes.

It is expected to help revolutionize present day space astronomy, revealing secrets of interstellar space heretofore impossible.

Provided Support

Northrop personnel of Northrop Services, Inc. at NASA's Goddard Space Flight Center, Greenbelt, Maryland, provided technical and environmental testing support to NASA on the Copernicus project.

Northrop Services, Inc. activities at Goddard include Structural Dynamics Support, Thermal Vacuum Operations, On-Line Data Collection and Analysis, Optics and Solar Simulation Support and Clean Room Support.

To accomplish these duties, NSI operates and maintains 15 vacuum and thermal chambers for testing scientific satellites. Solar simulation, contamination control, and gas analysis activities support space chamber operations as required.

NSI manages, operates, and maintains the Goddard Space Flight Center acoustic generation and vibration laboratory, and its associated data acquisition systems and equipment.

NSI personnel also operate the 60-foot, 500,000 pound environmentally controlled Launch Phase Simulator Centrifuge. The simulator was built by Northrop for the NASA space program.

NSI is a Northrop subsidiary. Frank W. Lynch is NSI president with vice president William J. Oakes as general manager.

Project Men

Ron Sheffield is Northrop's project manager at Goddard. Assisting him in providing testing on various NASA spacecraft, including the Copernicus orbiting telescope, are supervisors Steve Suarez, Structural Dynamics; Charlie Armbrust, Data Collection and Analysis; Dave Orbock, Thermal Vacuum; and Tom Amacher, Facility Maintenance and Special Projects. John Packard is staff assistant to the project manager and Howie Koth is business manager on the project.

HEARST CASTLE TOUR SCHEDULED

An NRC Travel Club tour for Hearst Castle, San Simeon, will depart from the Aircraft Division Plant One cafeteria at 9 a.m. Oct. 7.

Round trip bus transportation, double occupancy rooms at the Golden Tee Resort Lodge and a choice of either the upper or lower floor tour of the castle costs $24.50. Meals are not included.

Call Gayle Hayes, Aircraft Division ext. 2486 for reservations.

Citizenship Committee Asks Support for '72 Elections

All Northrop employees will have the opportunity to volunteer their services and to contribute financially to the election of the presidential candidates of their choice.

Under sponsorship of the Northrop Good Citizenship Committee, announcements have been posted on all bulletin boards urging employees to participate in the 1972 presidential election campaign.

"This year's presidential election will largely determine the political, economic and social direction of our country for the next four years. Because of its importance, each of us should consider making a significant contribution to the election of the presidential candidate of his choice," the committee stated.

"We should register, vote, and if possible, offer to serve as a volunteer in campaign activities for the candidate we regard best. Many may prefer to contribute some financial support, and for this purpose we are providing a means by which you can do so in complete privacy and independence of choice."

All donations will be sent to an independent auditing firm, which will forward them to the specified candidate.

Contribution cards and envelopes are available in racks posted at all bulletin boards where the Good Citizenship announcements appear.

Employees who wish to volunteer their services have been urged to apply to the Good Citizenship Centers in their respective plant locations. Good Citizenship Committeemen emphasize that the program is entirely voluntary and the political choice of each individual is handled in a confidential manner.

Good Citizenship Centers have been established in the following locations:

Aircraft Division, Marie Tully, ext. 2486; Electro-Mechanical Division, Robert Boostrum, ext. 288; Ventura Division, Patricia Schreiner, ext. 441; Electronics Division, Harry Clark, ext. 425; Research and Technology Department, Esther Demoss, ext. 2711.

Campbell Elected V.P., Controller

Jack B. Campbell has been elected vice president and controller of Northrop Corporation, James D. Willson, senior vice president, Finance and treasurer, has announced.

Mr. Campbell, who joined Northrop 20 years ago, formerly was in charge of Eastern Operations for Page Communications Engineers, Vienna, Va., a Northrop subsidiary. Prior to that he served as Page's chief financial officer.

In making the announcement, Mr. Willson noted that Mr. Campbell's many years of experience will "contribute to the continuing success of the financial management of the company."

A certified public accountant, Mr. Campbell holds an accounting degree from UCLA and has completed advanced studies in taxes, systems, and financing. He is a member of the American Institute of Certified Public Accountants.

James Corcoran To Head Saudi Arabia Operation

James R. Corcoran, Jr., has been named vice president and Corporate executive for Northrop Corporation's operations in Saudi Arabia, Thomas V. Jones, Northrop president, has announced.

In making the announcement, Mr. Jones said Mr. Corcoran's extensive background in international business and financial management will make a substantial contribution to Northrop's business interests in Saudi Arabia.

Mr. Corcoran formerly was senior representative, Financing Services for Bechtel Corporation. Prior to that he was president and chief executive officer of Champion Resources, Inc. He has held a number of key management positions.

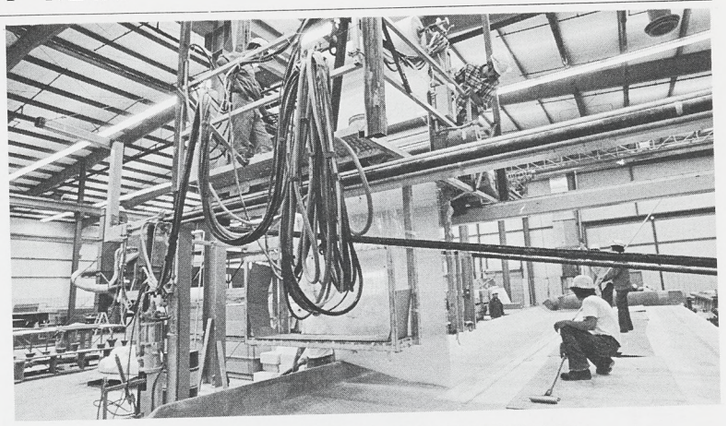
ART SHOW SET

The Electronics Division's P.V. facility will again be the site for Art for Fun(d)s Sake, one of Southern California's largest art festivals, sponsored by the Palos Verdes Community Art Assn.

The open-air affair is set for Oct. 14 and 15 from 10 a.m. to 5 p.m.

Artists from the Aircraft, Electro-Mechanical and Electronics divisions will be among the 250 Southland artists exhibiting at the show.

SPECTATORS WATCH LAUNCHING



UNIQUE MACHINE LAYS FIBERGLASS

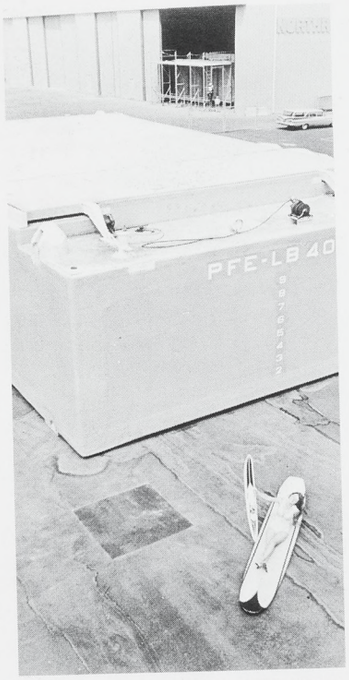
Northrop Hueneme Builds Its First Fiberglass Barge

NORTHROP HUENEME launched the first of its new fiberglass barges on Aug. 30. The barges, for use with the revolutionary new maritime cargo handling system LASH (Lighter Aboard Ship), are the largest displacement fiberglass cargo vessels in the world. Here the camera of Bob Thornton catches highlights of the launching ceremony and work along the production line. Northrop will build 200 of the barges for Pacific Far East Line.

WARREN MURRAY monitors stress during tests of the new fiberglass barge. Barge will be floated to ships and lifted aboard, greatly facilitating loading.

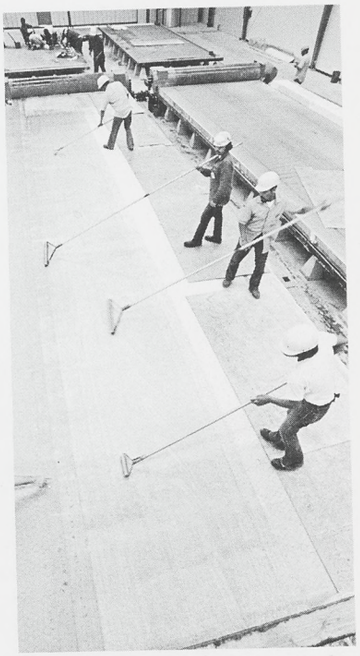
LUDWIG HEINZE LOHERNZ tightens fire hose connection during water fill test of the new fiberglass barge at Northrop Hueneme.

FROM LEFT, Larry Carroll, Bob Worth, Jack Bunnell, Jim Goff, Bob Lochemes, John Nichols and Bill Glass formed nucleus of the Northrop Hueneme operation. They are experienced in 747 wing fairing production which utilizes fiberglass construction.

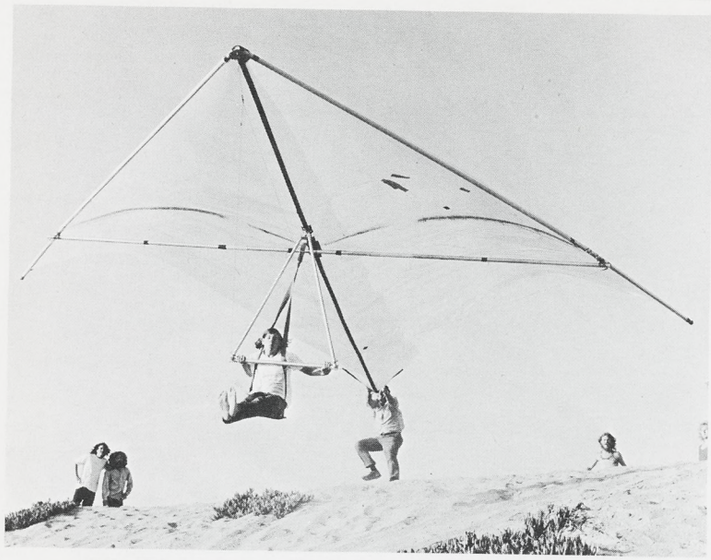


LINDA MC CLAIN, Miss Port Hueneme, contrasts smallest fiberglass marine structure, a water ski, with Northrop's new barge, the largest displacement fiberglass cargo vessel.

DIGNITARIES at the Northrop barge launching are, from left, Earl R. Bennett, secretary, Oxnard Harbor District, Leo J. Ramirez, vice president, Oxnard Harbor District, L. B. Carroll, managing director, Northrop Hueneme, George Gmelch, vice president of Operations, Pacific Far East Line, Inc., Bob H. Jennings, member, Oxnard Harbor District, Welko E. Gasich, president, Northrop Hueneme, and Cecil Schnelle, member, Oxnard Harbor District. Hubert Catlin, president, Oxnard Harbor District, was out of the city on business.



FABRICATING a fiberglass side panel are Del Earl, Richard Telles, Richard Porras, Frank Robles and Robert Esquivel.



NORTHROP glider enthusiasts take off a la Otto Lilienthal.

HONORING OTTO

Glider Interest Soaring

Three Northrop men work on the A-X and F-5E — the world's most modern aircraft during the week, but on the weekends they step back to aviation's diaper days. And it all came about because of a 123rd birthday party for a man who has been dead 76 years.

"Yes," said Nick Linardos, Current Aircraft Systems Requirements, "that's the way it started. Wil Tebo, manager, A-X Test, said he was going to a 'Happy Birthday, Otto Lilienthal, Meet,' which we found out was a fancy name for a Hang-Glider championship tournament.

"It was so-named to honor Lilienthal who was a pioneer glider experimenter. We had never heard of a hang-glider before, but Wil explained that it was an all-inclusive name for anything you could put together, hang-on to and fly without power. He had built one of bamboo, wire clamps and polyethylene plastic sheeting for his sons Glen, Alan and Bruce to fly at the meet."

The idea sounded so intriguing that both Mr. Linardos and Carl Weyl, manager, F-5 Aerodynamics, built their own glider.

"However, I was smart enough to make my sail too small for me to ride it," Nick reports. "So my sons, Jim and John, who are more pioneering than I am, fly it."

They discovered that there is a rapidly growing interest in hang-glider flying. Each weekend groups of enthusiasts gather at the sand hills at Playa Del Rey to emulate their hero, Otto Lilienthal.

One way to get airborne in the gliders is to run down hill into the wind until air flowing over the camber of the plastic or cloth sail creates enough lift to get man and wing into the air. Other more hardy souls jump off cliffs, buildings, and anywhere else they can get elevation. This is not recommended, however. Experienced glider fans say you should never attempt to fly higher than you are willing to fall.

Incidentally glider fans who pass along this rule rarely follow it themselves.

There are several types of wings used by hang-glider fans. The Northrop trio prefers the Rogallo wing type. This is a flexwing design which NASA recently tested as a rocket-booster recovery system. The basic concept of the Rogallo wing is supposed to go back to the pterodactyl, the gliding dinosaur.

"Our design is a bit more modern than that, of course," Nick reports. "The one Carl Weyl built with his sons, Ray and Bob, uses aluminum tubing, tape, rigging wire and 300 square feet of polyethylene plastic sheeting. So you can see that even if our design is 50 million years old, we approach it in a modern manner."

Bill Gramm Takes Journey Forty Years Into His Past

Bill Gramm, Electro-Mechanical Division, has just completed a trip 40 years into the past.

For his vacation this year, Mr. Gramm decided to seek the house where he was born in South Dakota — a house that he last saw when he was nine years old.

"I knew the general location," he said. "But not the exact place. I did recall very vividly how the old place looks. It was a 15-room house with a summer kitchen where we cooked for summer thresher hands. I drew a picture of it to take with me so I could show it when I asked for direction."

To his surprise, he had no trouble. In a bank in Menno, S.D., he found people who had known his father 40 years ago. "They told me where to go."

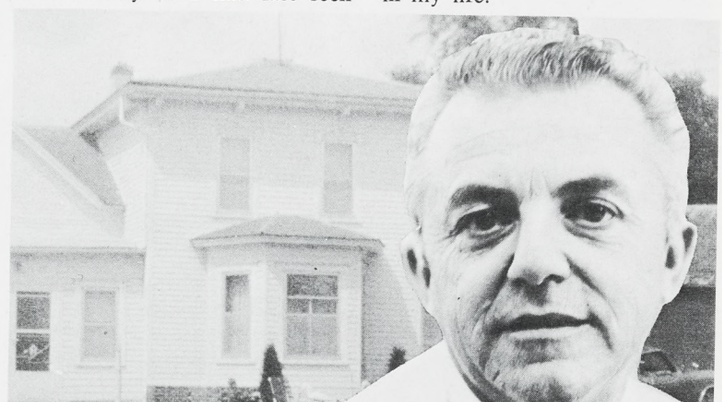
It was a shock, he said when he saw the place, which is now 100 years old. "I had the feeling I had really stepped back in time," he recalled. "It was almost exactly as I had last seen it. The only changes in the last 40 years were the summer kitchen had been removed, and some of the fences taken down. The barn had been repainted and had a new roof, but the rest of the house and even the old outhouse were still as they had always been."

The house was originally built in 1872 and bought by Mr. Gramm's father who moved into it in 1905, living there until the early 1930's when the family moved to California.

"It was a strange feeling," he said. "I felt that I could walk in, hang up my hat and feel at home again."

On the trip Mr. Gramm was accompanied by his wife, Olga, and son Andy, 15. They toured the major national parks in Utah, Montana and Wyoming, but the highlight was his visit back "home."

"It was," he says positively, "the best vacation I've ever had in my life."



BILL GRAMM AND HIS OLD HOME

COMPUTER CONFUSES OLSON'S 'MR. Y34'

Computers are getting more human every day — they get confused like people.

At least this is the experience of H.D. Chen, Olson Laboratories engineer.

Mr. Chen has just received a form letter, addressed by a computer. It was addressed to H. Chen Nrthrp8200 Y34 and began "Dear Mr. Y34."

And then just to make sure that Mr. Chen realized that he had a new designation, the letter repeated the "Mr. Y34" three more times, ending by assuring him, "You can take advantage of this training opportunity, Mr. Y34, without interfering with your work."

After a careful study of the letter, it is "Mr. Y34's" suggestion that the company use their excellent training course on their computer. It needs it, for Y34 is a building number.

NORTHROP INVITED TO DISNEYLAND

Northrop employees have been invited to take part in a "Family Fun Night at Disneyland" sponsored by the Association of the U.S. Army Oct. 20 from 8 p.m. to 1 a.m.

Northrop ticket outlets are offering 1,000 tickets on a first-come, first-served basis. Each sells for $4.25 and includes admission to Disneyland and unlimited use of all attractions, exclusive of shooting galleries.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

T-Bird, 1956, completely restored, radio, p/b, p/s, $1,995. 213-756-1812.

Station Wagon, 1969 Pontiac Bonneville, a/c, p/s, p/b, $2,450. 213-377-6658.

Buick, 1964 Wildcat, 4-dr., new batt., $550. 213-644-6580.

Ford Bronco, 1969, a/c, o/sized tires L78-15 & whls., $2,450. 213-378-5382.

Falcon, $200. 213-532-4625.

Station Wagon, 1966 Ford, r/h, a/c, $650. 213-928-2257.

Station Wagon, 1971 VW Mod. 411, 85 h.p., auto. trans., 6,500 mi., $2,700. 714-774-9183.

Continental, 1967, $1,500. 213-644-3376.

Austin Healey 3000, 1960, wire whls., $595. 213-378-1140.

Pickup, 1966 Chev. ¾-ton, w/10′ o/head camper, many extras, $2,500. 213-675-3254.

Lotus Europa, 1971, $4,500. 213-759-7885.

Rambler American, 1964, r/h, $450. 213-644-7088.

Austin America, 1969, new tires, trans., $595. 213-376-5648.

Ranchero, 1968 G.T., air, p/b, p/s, 47,000 mi., $1,800. 213-835-7663.

T-Bird, 1957, eng. & trans. o/hauled, $1,850. 213-371-6168.

Volkswagen, 1968 Squareback, r/h, $1,050. 213-375-9397, 213-375-2091.

Fiat, 1967, 850 Spyder, $650. 213-672-3133.

MGB, 1966, 54,000 mi., tonneau cover, $1,200. 213-377-4230.

Pickup, 1966 Ford, w/8′ camper, V-8, a/t, radio, $1,550. 213-377-8155, 714-249-3044.

Plymouth, 1966, Belvedere, r/h, V-8, 4-dr., $575. 213-329-3548.

Volkswagen, 1300, 1965, radio, full reclining front seat, $495. 213-823-4059.

Rover, 1968, auto. 2000, chrome whls., 4-dr., $1,250. 213-675-5712.

Volkswagen, 1966 bus, $450. 213-835-3985.

Station Wagon, 1963, Fairlane, V-8, auto., r/h, p/s, $375. 213-671-4550.

Jaguar, MK X, 1963, 4-dr., p/s, p/ b, $1,000. 213-371-8275.

Plymouth, 1969, Custom Sub. 2-seat wagon, auto, a/c, $2,250. 714-892-7174.

Fiat, 1968 850 Spyder, r/h, eng. reblt. $1,000. 213-379-6425.

Miscellaneous For Sale

Motorcycle, 1967 Bultaco, 200 cc, new gear box, $299. 213-274-0589.

Travel Trailer, 26′ 1969 Monitor, Eastern coach, self-contained, sleeps 6, 17′ awning, screen rm., $3,700. 714-842-4688.

Stove & dble oven, Magic-Chef Chateau mod., rotisserie w/3 spits, 30″ w., 6′ 5½″ high, white, $200. 213-421-0145.

Movie Outfit, 8 mm, $75. 213-679-6982.

Dishwasher, G.E. portable elec., full size, copper, chop. block top, $90. 213-530-5526.

Tires, 4 Firestone fiberglass belted, E-70-14, $80. 213-675-2514.

Refrigerator, 18′ G.E. 2-dr., white, $50. 213-542-5434.

Room Air Conditioner, Coldspot, 5,000 btu, $60. 213-347-9756.

Sloop, 16′, fiberglass, w/trailer, $500. 213-985-6968.

Coffee Table w/2 end tables, walnut, $20. 213-676-0818.

Mini Bike, Bonanza 1200, 3½ h.p. Tecumseh, $95. 213-675-0490.

Mobile Home, 2-bdrm., 1971 Homette, 20′ x 44′, 2 baths, air cond., & lot 90′ x 120′ fenced, $13,500. 714-897-3703.

V.T. V.O.M., Knight, lge. 6″ meter, $30. 213-676-5101.

Acreage, 2½ acres, Flamingo Ests., 8 mi. north of Yucca Valley, streets, water, pwr. $5,000. 213-320-8325.

Rug, bear skin, $100. 213-675-1000.

Crib & mattress, high chair, $15 or sell sep. 213-326-3135.

Miscellaneous For Sale

Ski Boat, 16′ Tahiti, trailer, 125 h.p. Merc. outboard, $1,850. 213-869-2673.

Strip Chart Recorder, Techni-Riter, 20-channel, $35. 213-545-7149.

Bed Frames, 2 twin, metal, padded h/boards, $10. 213-374-8645.

Freezer, 21 cu. ft., upright, white, $350. 213-537-0757.

Formals, size 7-8, $5 & up. 213-635-4104.

Dress Form, Adjust-O-Matic, for sizes 8-20, $5, other items, various prices. 213-837-4525.

Sailboat, 24′, inbd., freshwater cooled aux. eng., sleeps 3, $4,500. 714-833-1331.

Dog, basset hound, A.K.F. regist., male, 2 yrs. old, doghouse included, $50. 213-596-0433.

Saxophone, Greisch Commander alto, $60. 213-377-8508.

Picnic Table, umbrella, $30. 213-675-6020.

Golf Shoes, ladies' Arnold Palmer, size 7B, worn once, $10. 213-784-3802.

Acreage, 2½ acres, 1½ mi. from Calif. City golf course, 10% dn., $6,600. 213-430-1952.

Encyclopedia Britannica, set w/2-vol. dictionary, 1972 ed., not used, $300. 213-644-4859.

Range, gas, Magic Chef, white, self-cleaning ovens, completely auto., $350. 213-926-5665.

Lawnmower, gas, & edger, $45 ea. 213-532-6687.

Piano, Wurlitzer elec., $200. 213-370-7861.

Camper, Tear Drop, 8′ long, ½ cabover, sleeps 3, equip., stove, ice box, $400. 213-865-3198.

Flight Jacket, Northrop orange, lge., $18. 213-391-5046.

Tape Deck, Concord, stereo, $70. 213-383-2887.

End Tables, 2 matching French Provincial, $20 ea. 213-534-2951.

Movie Camera, Bell & Howell Super 8, w/ projector & screen, $100. 213-327-8357.

Motorcycle, Triumph 1966 650 Bonneville, recent eng. o/haul, 8″ o/stock, $850. 213-679-6192.

Painting, Golden Surf, repro. of seascape by Robert Wood, walnut edge frame, 29 x 65″, $10. 213-377-5362.

Acreage, 2½ acres, edge of Apple Valley, terms, exc. rec./retirement, pwr. & phone, utils., $5,995. 213-325-5609.

Mobile Home, Hillcrest, 20 x 53, 2-bdrm., 2 baths, family rm., porch & awnings, Brea area, $12,900. 714-529-8195.

Lot, Canyon Lake, near Elsinore, 60 x 195, club membership for boating, swimming, small dn., $6,950. 714-734-0543.

Used Bricks, approx. 200 & cement blocks, 10¢ ea. 213-376-4831.

Motorcycle, 1967 Hodaka, Ace 90, just reblt., $225. 213-377-8547.

Boat, 14′ Runabout, 40 h.p. motor, trailer, elec. start., $375. 213-324-8853.

Houseboat, 12 x 34, on Lake Mead, bltins., f/place, self-contained, sleeps 6, many extras, $6,000. 213-634-5978.

Ski Boots, women's Koflack, size 6½, $20. 213-372-7958.

Dressers, Simmons white provincial, girl's, $60 ea. 213-326-3136.

Dining Room Set, mahogany, 4 chairs, round table, 2 exp. leaves, glass front buffet, $175. 213-675-4239.

Piano, restyled upright, formica covered, $150. 213-941-3804.

House, 2-bdrm., $2,300 dn., Hawthorne High area, $23,000. 213-375-5009.

Table Saw, Sears Craftsman, 8″ small ext. table, 2 blades, $75. 714-535-4864.

Divan, 3-pc. sect., L shape, $85. 213-323-8797.

Sleeper, sofa, twin size, $85. 213-320-6887.

Pups, pug male & female, AKC reg., 6 wks. old, $125 ea. 213-926-7624.

Surfboard, 8′10″ Greg Noll, $20. 213-378-2790.

Tires, 4 6.45 - 14, $22. 213-534-4068.

Auto Air Conditioner, fits Chrysler, $85. 213-672-2370.

Lot, Lytle Creek Canyon, R-1, $2,800. 213-675-3100.

Exhaust System, stock, for 1971 VW bus/ camper, used 15,000 miles, $10. 213-421-2121.

Bicycle, girl's 10-spd., $65. 213-392-1447.

Chandelier, 18″ Spanish-type black wrought iron, $15. 213-378-6415.

Miscellaneous For Sale

Clothes Dryer, G.E., $80. 213-530-3666.

Sliding Glass Doors, 16′, 4′ panels, 2 fixed, 2 center slide 3/16 hvy. glass, $300. 213-676-7213.

Buffet, 60″ long, blond h/wood, $75. 213-375-3790.

Sofa Bed, $25. 213-679-5177.

Slide Projector, Bell & Howell 135 mm, 9 mos. old, $40. 213-326-0340.

Cassette, car stereo, player, recorder, 8 tapes, 2 spkrs., 6 mos. old, $85. 213-291-6075.

Jointer, Craftsman, 6″, motor & stand, $85. 714-523-8414.

TV, Admiral, b & w, 17″ table mod. $10. 213-377-4623.

House, corner, 2 yrs. old, 2-story, 4-bdrm., 2 baths, f/place, F.A. heat, bltins., dps., Cerritos, $32,500. 213-860-3022.

Acreage, 2½ acres, Antelope Valley, E. side, water & elect. to prop. cor., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Airline Ticket, to Japan, leave Sept. 30, Unitour, $208. 805-482-7263.

Lawnmower, Blair hand-type, $15. 213-370-0824.

Houses, 2 & 3-bdrm., on 1 lot, near Harbor Fwy., $24,000. 213-329-2242.

Travel Trailer, 18½′ Prowler, cpts., self-contained, $2,100. 213-324-3066.

Boat, 1970 16′ Chrysler i/o, complete w/ trailer, less than 10 hrs. on eng. & hull, $2,000. 213-326-4157.

End Tables, walnut, $10 ea. 213-541-3000.

Arc Welder, Craftsman, 50-75-100 amp o/put, 230 v. 20 amp input w/32′ hd. 3-wire cable, other access., $70. 213-377-9723.

TV, Sears Silvertone, color, 21″ table mod., 2 yrs. old, $200. 213-832-3857.

Drafting Machine, Post 24″, $50. 213-675-5258.

Rug Shampooer, Shetland-Lewyt, & floor polisher, $20. 213-644-3922.

Motorcycle, 1972 Yamaha 100, 1,000 act. mi., under warranty, $450. 213-889-8723.

Cassette Tape Player, Panasonic, w/carrying case, 6 mos. old, $25. 213-674-1400.

Trumpet, King, case, $75. 213-373-4298.

Boat, 10′, fiberglass, 5 h.p. motor, and oars, $150. 213-671-1660.

Stereo, AM-FM, w/record player & tape deck, G.E. dk. pecan contemp., $250. 213-347-4196.

Exercise Machine, comb. rowing/bicycle, $20. 213-326-5731.

Beds, twin, white h/boards, spring & mattress, $25 ea. 213-675-6081.

Motorcycle, Honda 350CB, street, $595. 714-879-2569, 714-533-7246.

Boat, 16′ Glasspar, 60 h.p. Merc., 5 h.p. John., big whl. trailer, $650. 213-670-2098.

Washer & dryer, Sears Lady Kenmore, $60 set, other items. 213-866-3847.

Wheels, 5 safety rim, for Ford ½-ton pick-up, fit 7.00x15 tires, $125. 213-644-2941.

Movie Camera, 8 mm Yashica U, zoom reflex 37.5 mm lens, elec. eye, $35. 714-523-5315.

Crib, mattress, $20, other items. 714-536-9929.

Piano, Baldwin Acrosonic spinet, $500. 213-894-1381.

Ski Boat, 16′ glass o/wood, trailer, eng. needs work, $200. 213-423-1363.

Wanted to Buy

Answer Phone System, $50-$100. 213-545-2166.

Dinette Set, bicycle, girl's, convt. sofa. 213-379-4517.

Skis, Kastle, La Feme, 180 or 185. 714-528-5461.

For Trade

Mint (proof) silver dollar, 1972, trade for 1971 mint (proof) silver dollar, must be in orig. sealed container. 213-675-2005.

Free (To Be Given Away)

Logs for fireplace. 213-939-8053.

Dog, purebred Dachshund, female, spayed. 714-847-5938.

Dog, German shorthair pointer, 18 mos. old, female, needs lge. yd. 213-375-8148.

Pups, cockapoo, 6 wks. old. 213-921-5745.

Baby Guinea Pigs. 213-370-0484.

Rentals Offered

Cabin, Big Bear, on golf course, sleeps 12, $40 wkend, $100 wk. 714-595-3968.

Rentals Offered

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, $125 1 wk., $200 2 wks. 213-375-2255.

Apt, 1-bdrm., unfurn., in Redondo Bch., cpts., dps., bltins., gar., $150. 213-831-0453.

Condominium, Palm Springs area, furn., 2-bdrm., pool, $100 wk., $60 wkend. 213-327-8994.

Mountain Home, Big Bear City, 2-bdrm., bath, f/place, furn., $35 wkend, $100 wk. 213-823-1788.

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, $30-$40 wkend, $70-$90 wk. 213-868-8040.

House, on 5 acres, Big Bear Lake, 2-bdrm., f/place, furn., sleeps 8, $100 wk., $45 wkend. 213-325-8267.

Cabin, Lake Arrowhead, family only, $125 wk., $55 wkend. 213-831-1745.

Apt., 3-bdrm., 2 baths, cpts., dps., bltin stove, laundry facilities, walk to Northrop, $200 mo. 213-674-1400.

Cabin, Moonridge, 3-bdrm., 2 baths, kit. utens., f/place, family only, $125 wk., $50 wkend. 213-326-7232.

Apt., 1-bdrm., furn. $120, unfurn. $110. 213-676-4734.

Mature Woman to share home w/same, 2 miles from Northrop, $90 mo. 213-329-6728.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

House, 2-bdrm., lge. fenced back yard, gar., cpts., dps., $175. 213-675-8739.

Need working girl to share lge. house, walking distance to Hermosa Bch., pet o.k., share utils., $75 mo. 213-379-4641.

Apt., 3-bdrm., 3 baths, sub. gar., adult bldg., Inglewood, $350. 213-670-6084.

Cabins, Big Bear Lake, completely furn., $18 day, $90 wk. 714-866-2548.

Rentals Wanted

House or apt., 2-bdrm., w/yard, close to work, 3 people & 5 mos. old infant, $150-$175. 213-371-8768.

Personals

My heartfelt thanks to the many Northrop friends who responded to the news of my wife Lula's illness and death. MARVIN W. SCHNEIDER

I wish to thank each & every one for the kind remembrances upon my retirement. CLIFFORD H. DILTZ

We wish to express our sincere appreciation for the kind expressions of sympathy regarding the loss of our son. TONY & LESSIE SPECIALE

I wish to extend my sincere appreciation & thanks to all my friends for their thoughtful gifts & kind wishes upon my retirement. JOSEPH L. STEVENSON

I wish to thank all my Northrop friends for their kind thoughts during my recent illness. JAMES WORTHAM

Many thanks to all my friends & co-workers for a happy retirement party. BARNEY ELLIOTT & FAMILY

I wish to express my thanks for the kindness shown to me during my recent confinement in the hospital. KAROLL SHURTZ

To all my wonderful friends at Northrop, thank you for the great retirement party & gifts. GLENN S. CRAYK.

We wish to express our thanks for the flowers & expressions of sympathy in the passing of our husband & father, Newt Cook. SARAH & ED COOK.

Thanks for making an interesting summer enjoyable. I value the experience of working with you, & I wish you a prosperous and satisfying future. TONY KALAS.

For Sale or Trade

Acreage, 2½ acres, Lancaster near Fox Airport, $8,995 or trade for 4-whl. dr. vehicle, plus cash. 213-645-2711.

NORTHROP NEWS

Vol. 30 **No. 9**

Published monthly by Northrop Corporation Employee Communications.

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"IT TOOK FORTY years, but it was worth it," said George Matter, Electro-Optical, as he celebrates his first hole-in-one. He started playing golf when he was 10 and finally made his perfect shot in an NRC tournament at Whispering Palms. The hole-in-one was made with a number three iron on the second hole with a 176 yard drive. Mr. Matter was playing in a foursome that included Dave Hammond, Ed Luszez and Fred Bailey. "I thought I was in the sand trap," he recalled, "but the ball hit the slope of the green, bounced to the right and into the cup."

Visit to Queen Recalls Past

A recent visit to the Queen Mary in Long Beach was a trip back in time for Rudy Ramirez, Electro-Mechanical Division stock clerk.

Mr. Ramirez was a passenger on the Queen in June 1943 when the famous ocean liner was a World War II troopship.

"She was called the 'Gray Ghost' then," Mr. Ramirez recalled, "because of the way she slipped through the submarine wolf packs sent to get her. I remember we were only out two days when we heard that Hitler had promised a cash reward and an Iron Cross to the sub commander who sank her."

On his first return to the ship since he disembarked 29 years ago in the Firth of Clyde, Scotland, Mr. Ramirez found quite a few changes.

"Outside she is still the Queen Mary," he said, "but the changes inside are tremendous. The deck where I bunked is now Jacques Cousteau's Man in the Sea exhibit. And the tourists are quite a different sight than the thousands of GI's I remember jamming her companionways."

Another change was the fish and chips he had to eat during this last visit. Before we lined up for hours to get two meals a day of Navy rations.

"But despite the changes, it was a thrill to walk the Queen's decks again after all these years. For me it was a real homecoming."

NRC CLUBHOUSE GETS FACE LIFT

"The NRC Clubhouse on Valencia has been completely refurbished," according to Roy Steinestel, special events chairman.

Volunteer teams of club members have devoted about 1,000 man-hours of time to repainting the interior, kitchen and cloak rooms, and putting in new plants around the building.

Among those who donated to the project in addition to chairman Steinestel were Keith Davis, Florence Correll, Charles Fox, Sofie Garcia, Jack Kinzer, Paul Kohler, Barbara Hughes, Harold Leff, Arnold Monreal, Ed Mosher, Don Taylor, Mae Taylor and Mid Williams.

IT PAYS to wear eye protection, William Temple tells Supervisor Lee Gough, left, as he shows how his glasses protected his eye when a cutting tool shattered. A piece of the carbide tool hit his lens with sufficient impact to cause a deep scratch. Mr. Temple will be nominated for membership in "The Wise Owl" club composed of members whose eyesight has been saved by protective eyewear. Standard Practice Procedure SPP 10-4 spells out eye protection requirements for various work exposures.

POSEIDON

(Continued from page 1)

marks to members of the Electro-Mechanical Division Polaris/Poseidon team, Mr. Lynch said that the division is extremely proud of its contributions to the program.

"Our successful part of the program is the result of teamwork, beginning with our association with Lockheed Missiles and Space Co., the prime Polaris/Poseidon contractor, and the U. S. Navy's Systems Program office. Added to this three-way team are our own division's engineers, assemblers and field representatives whose superior technical knowledge, pride in craftsmanship and determination built a really outstanding product.

The Electro-Mechanical Division's Polaris/Poseidon program is under direction of Ralph C. Dix.

LAUNCHER

(Continued from page 1)

are loaded onto the guide rails that support and guide the missile when it is launched."

Northrop personnel involved in the Army Missile Research Launcher program include Dave Hammock, program manager; Gerald Griffies, Theoretical Design; Don Haynes, Electrical and Hydraulic Design and Installation; Don Drier and Charles Wallace, Launcher Design.

AMONG THE NEARLY 800 who enjoyed the recent NRC Family Picnic were, top, from left, Roland and Marjorie Simpson, who get free popcorn from Grace Bodganoff; boating fans Patty Govoni and Tracey Hansen; and Lupe Orosco with Chico the clown. At center is the father's and son's game. Below, small fry candy scramble and at right a view of the quiet, cool surroundings at Silver Lakes. The picnic was an outstanding success and all who helped plan and run it are due the highest compliments.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 10 | October 1972

Olson to Test Durability of Car Controls

Northrop's Olson Laboratories has received a $280,000 contract from the Environmental Protective Agency to test the durability of emission control systems on 1972 automobiles, according to Don Foulds, Olson's vice president for Operations.

The program includes testing cars from 125 engines in 24 engine family groups. The tests will be conducted at Olson's Livonia, Mich., test center, under direction of James E. Race, eastern regional manager for Olson.

The tests will be identical with those given new cars before they are certified for sale. They will be driven on dynamometers for a simulated 23-mile trip, to measure the primary polluting gases: oxides of nitrogen, carbon monoxide, and hydrocarbons.

Amendments to the Federal Clean Air Act of 1970 provide for the possible recall of entire model lines if a substantial number of cars in a particular model fail to conform to emission standards.

THERE'D BE NO smog problem if everyone followed the example of Marguerite Seighman, assembler at Page Court. Her three-wheeler tricycle is a familiar sight as she pedals eight miles a day to her work, which alternates between Page Court and Orangethorpe. Mrs. Seighman reports that pedaling "toughens you up and keeps you out in the fresh air."

GERSHOM BELL is congratulated by Robert Jeffries, NSI-Houston's Experimental Mechanics Lab, after receiving the "Silver Snoopy" award for outstanding performance during the NASA Skylab Orbital Dynamics Vibration Model survey at the Manned Spacecraft Center. Astronaut Charles "Pete" Conrad wrote to Mr. Bell: "Please accept the astronauts' 'Silver Snoopy' for professional excellence. It is given only to those individuals whom we regard as among the best in their respective professions."

ZERO-IN ON SAFETY

Safety Campaign to Start

The Electro-Mechanical Division is participating in a nationwide industrial campaign called "ZERO-IN ON SAFETY." The program is an addition to the division's progressive safety and health program.

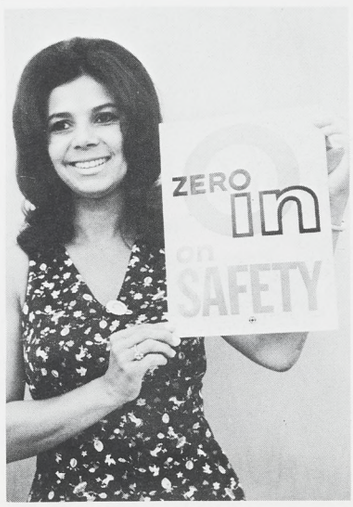
In kicking off the new program, Frank W. Lynch, vice president and general manager, said the campaign offers an opportunity for the division to "ZERO-IN" on specific safety and health issues before accidents happen.

Superior Safety Record

Mr. Lynch pointed out that the division has always maintained a superior safety record. "However," he added, "safety is one program where being good is not enough. We must constantly seek new ways and new ideas to make our safe working conditions still safer. The ZERO-IN program is the latest tool our Management Safety Council is using to achieve this goal."

A booklet explaining details of the ZERO-IN program will be distributed to all employees with this week's paycheck, according to Safety Administrator Al Van Der Most.

Members of the division Safety and Health Committees, identified by their Green Cross badges, will play a key role in the campaign by making weekly inspections of the plant areas. Team members will be looking for specific targets selected each week for preventive action.



ARLENE STEWART asks us to join the campaign and ZERO-IN ON SAFETY.

DSRV Test Makes Mile Deep Dive

The U.S. Navy's second Deep Submergence Rescue Vehicle (DSRV) recently successfully completed a mile-deep dive beneath the surface of the Pacific 35 miles southwest of San Diego as part of its test and evaluation program.

The DSRV is the principal element in the Navy's Rescue System program, designed to rescue survivors from a disabled submarine resting on the ocean floor.

The Rescue Vehicle was built by Lockheed Missiles and Space Co., Sunnyvale, Calif., with subsystems and equipment provided by a nationwide team of subcontractors. Northrop's role since the program's inception in 1965 has been to provide systems engineering support to the Navy's Project Office.

Under J. W. Jenkins, manager of Northrop Services, Inc. Eastern Operations Department, support is provided from both Arlington, Va., and San Diego. The San Diego office under W. D. Buckbee provides direct on-site support to the test program which is currently taking place in the waters off San Diego and near San Clemente Island. Participating in this test support effort are: Jack Vaughn, Daphne Hoskins, Jay Lillywhite, Peter Buckley, Jack Drucker, Robert Quinn, Richard Viertel and Eugene Smith.

Norton Elected

Robert J. Norton, manager, Cost Management, has been elected vice president of the Orange Coast Chapter of the National Association of Accountants. Mr. Norton has been a member of the association for the past 12 years, serving as a director for two terms, and as director of Education and director of Meetings for one term each.

Mr. Norton

Japan's F-5 Decision

Has No Effect on Business, Employment

(Editor's note: The following was issued by Northrop in response to the recent news announcement regarding Japan's defense procurement plans.)

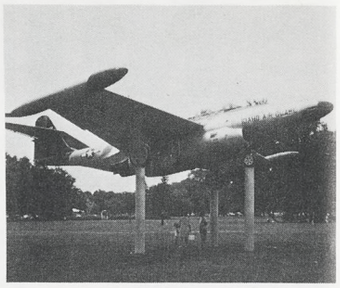
"The recent announcement by the Japanese Government not to buy F-5 aircraft will have no effect whatsoever on employment or business at Northrop. While the Japanese Air Self Defense Agency for several years has shown a continuing interest in acquisition of F-5 aircraft, Northrop itself has never considered any Japanese acquisition a serious possibility.

"It has long been known that the Japanese desire to build up its own aircraft manufacturing industry has been a number one priority. Consequently, any potential Japanese purchase of F-5s was never included in any of the company's business forecasts.

"To date, Northrop has firm orders from the U.S. Government and other Free World nations for the purchase of more than 300 F-5E aircraft. The company expects total F-5E sales to easily surpass the 650 mark and possibly exceed 1,000. At a unit price of $1.6 million, total F-5E aircraft sales over the life of the program could have more than a $1.5 billion impact on the U.S. balance of trade. Ground support equipment, spares and other related equipment could make the total impact of the program considerably higher.

"As Northrop pointed out at the time of the F-5E rollout, the International Fighter program is expected to result in more than 12,000 additional aerospace industry and support jobs in the state of California alone. The recent Japanese Defense decision does not have any effect on either the company's sales or employment projections."

A Northrop spokesman pointed out that the 300 firm orders for the F-5E at the time of the aircraft's first flight was "unprecedented in recent U.S. military aircraft history."



"JUST LIKE OLD TIMES," writes Northrop retiree David Stadler, enclosing this picture of the F-89 Scorpion he took in a city park in Nampa, Idaho. Mr. Stadler, who was manager of Personnel, retired in 1964. The Scorpion was one of the planes Northrop built during his 22 years years with the company.

NADC To Study Louisiana Airport Plan

Northrop Airport Development Corporation (NADC), has been selected to help develop an airport systems plan for the state of Louisiana, including a study of whether there should be a new regional airport to serve both New Orleans and Baton Rouge.

The Federal Aviation Administration has approved a $296,725 grant to the state of Louisiana, under the planning grant program set up in the 1970 Airport and Airway Development Act. Total cost of the study will be $445,088.

Louisiana Gov. Edwin W. Edwards appointed Henry G. Grimball, Metairie, La., architect, as coordinator-planner for the program and Mr. Grimball selected NADC to assist in developing aviation elements of the plan. NADC is a wholly owned subsidiary of Northrop Corporation.

The governor said the purpose of the statewide study will be to "insure effective location and development of airports and to encourage maximum potential growth for the economic well-being of the citizens of the state of Louisiana."

The study will determine the extent, type, general location, and timing of airport development needed in the state. A separate part of the study will be concerned with whether New Orleans and Baton Rouge should be served by a large regional airport in the future. This phase of the study will be completed within 60 days.

NO, THE F-5E IS NOT getting a traffic ticket. The Los Angeles Police Department patrol car is helping direct traffic past the Tiger II as the new plane is trucked past Los Angeles City Hall on its way to Edwards AFB where the International Fighter made its maiden flight August 11. (Photo by Jim Haddow)

ZONTA AWARDS

Zonta International, a service organization of executive women in business and the professions, has announced the Amelia Earhart Fellowship Awards to women for advanced study and research in the aerospace sciences. The $3,000 grants will be awarded to best qualified candidates for assistance in the 1973-74 school year.

Applications must be filed by Jan. 1, 1973. Candidates or instructors wishing to recommend students, should write to: Zonta International, 59 E. Van Buren St., Chicago, Ill. 60605.

COUNCIL PRESIDENT

Thomas V. Jones, Northrop president and board chairman, has been elected president of the Los Angeles World Affairs Council.

Mr. Jones succeeds Roy L. Ash, president of Litton Industries, who completed two successive one-year terms as council president.

Other officers selected to lead the council for the next 12 months are John V. Vaughn, vice president and treasurer; William H. Burgess, Lloyd N. Hand, Henry T. Mudd, and William French Smith, vice presidents; Mrs. Herbert Nootbaar, secretary; and J. Patrick Garner, executive director.

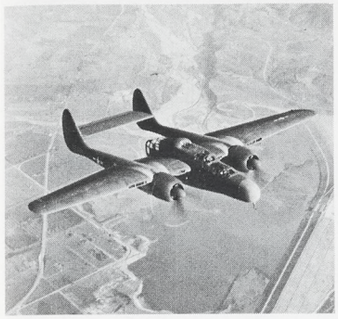
Northrop Credit Union Announces Policy Changes

Once a member, always a member, makes it possible for all members, once qualified, to continue to use the services offered by the Northrop Credit Union. This is one of the changes to credit union policies announced by R. A. Lindsey, president of the Credit Union board of directors.

This change does not alter continued membership privileges previously extended to Northrop retirees. Also, former employee members and existing family accounts may continue their membership if they maintain a share account of $5 or more.

In the event that this requirement is not met, their account will be closed after the end of the next dividend period. The dividend period ends Nov. 30 and is paid in January. Those with loans will be kept open until the loans are paid.

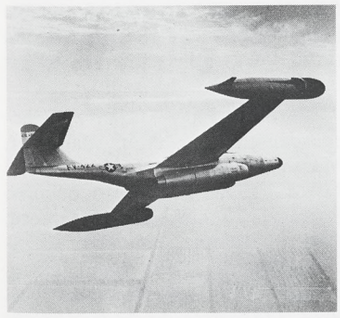
U. S. Air Force Celebrates 25th Anniversary



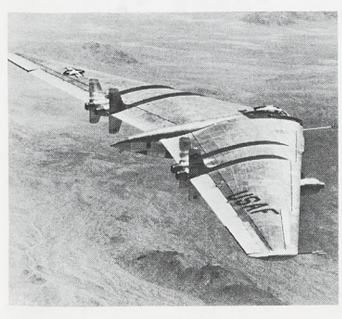
P-61 BLACK WIDOW

X-4 FLYING LAB

C-125 RAIDER



F-89 SCORPION



YB-49 FLYING WING

UNITED STATES AIR FORCE

PRIDE IN THE PAST - FAITH IN THE FUTURE

Northrop Has Been AF's Partner for 25 Years

When the United States Air Force celebrated its Silver Anniversary in September, Northrop Corporation also celebrated its own 25th Anniversary as a partner of the Air Force in its vital role in the defense of the Free World.

The United States Air Force officially began on Sept. 18, 1947, when Chief Justice Fred M. Vinson administered the oath of office to the first Secretary of the Air Force, W. Stuart Symington.

At this time Northrop was very much a part of the nation's military aviation activities. The P-61 Black Widow, the first airplane built exclusively for night fighting, was still in the military inventory. The experimental XP-56, MX-324 Rocket Wing, the XP-79 Flying Ram, and the dramatic B-35 Flying Wing were pushing back the frontiers of flight, paving the way for the coming jet age. The Northrop F-15 Reporter, a reconnaissance version of the Black Widow, and the N-23 Pioneer, a husky, short-field transport, were also serving the new Air Force.

In the critical years that followed, Northrop supported the Air Force with the X-4—a miniature flying laboratory; the F-89 Scorpion, first twin-jet, all-weather interceptor; and the C-125 Raider, three-engine transport for airborne assault and rescue aircraft.

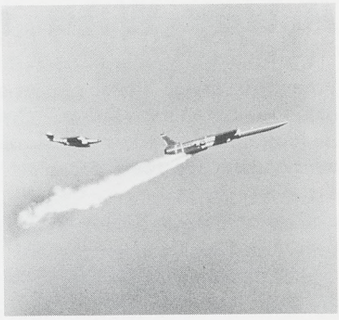
Northrop then joined the Air Force in moving into the missile age with the SM-62 Snark, the first intercontinental guided missile. The highly successful Snark program was followed by the T-38, the Air Force's first supersonic jet trainer which introduced a new era of pilot training. Then the F-5 became the first U.S. fighter aircraft designed for Military Assistance Program countries.

Next Northrop program for the Air Force was the X-21A Laminar Flow Control test aircraft which demonstrated Northrop's laminar flow system which reduced turbulence and increased range of long range aircraft by as much as 75 per cent.

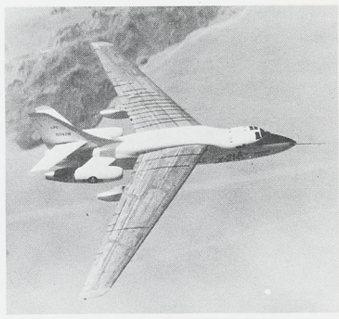
Today, as the Air Force flies into its second quarter century in the defense of the nation, Northrop is still very much a part of the team that keeps these defenses strong.

The Northrop Lightweight Fighter and the A9-A close support aircraft are being built for a competitive fly-off with General Dynamics and Fairchild.

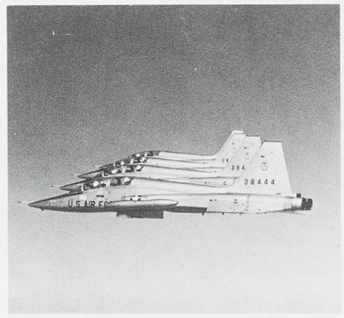
The Lightweight Fighter is designated the P-600. It is a twin-engine, high-performance aircraft powered by two General Electric YJ101 turbojet engines. The A-9A aircraft is a rugged twin-engine, single-place aircraft with short takeoff and landing capabilities. It carries varied payloads and is capable of long loiter time over target areas.



SM-62 SNARK

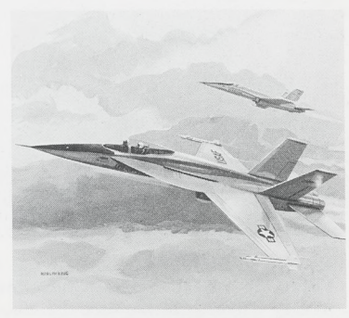


X-21A LAMINAR FLOW



T-38 TALON

A-9A CLOSE SUPPORT



LIGHTWEIGHT FIGHTER

Exchange Student Spends A Day With 'Foster Father'

Christian Guitton, a 17-year-old French Exchange Student, spent a day with his "foster father," Ora A. Patton, learning how Northrop tests engines for the F-5E.

Christian came from Thouras, France, to attend Palmdale High School as a senior under a student exchange program sponsored by the American Field Service.

The American Field Service is devoted to improving the relationships, understanding and communication between the United States and foreign countries. It is a private organization supported by donations and community work projects.

Christian will live with Mr. Patton, his wife Bobylea and their four children during his year in the United States. As the "get acquainted with America" part of the program, he spent a day with Mr. Patton on the job at Northrop.

Mr. Patton is an experimental flight test crew chief with the Engine Runup section at the Aircraft Division's facility at Edwards Air Force Base, and Christian watched runup tests on the J85-21 engine for the new Northrop F-5E.

ORA PATTON, RIGHT, shows exchange student Christian Guitton how Northrop tests the J85-21 engine for the F-5E.

FIRST FLIGHT COVERS AVAILABLE

The NRC Stamp Club has flight covers of the F-5E Tiger II first flight on sale at Aircraft Division Personnel Activities.

The covers were placed aboard the F-5E on its maiden flight at Edwards AFB in August. The envelopes have an imprinted cachet, which is a photograph of the aircraft in flight, and bear an 11-cent air mail stamp cancelled at Edwards. Statistical data inserts are part of the package.

The covers are 35 cents each or three for $1 on a first come, first served basis.

Fact inserts on the A-9A are available for those who purchased that previously issued first flight cover.

JOYCE OSHIRO, left, and Marge Rudluff, Aircraft Division, are trying to decide whether to set the clock back or forward when Daylight Saving Time ends on Oct. 29. So, to be on time for work Mon., Oct. 30, be sure and set your clock back one hour.

THE MAJKAS ON THEIR 1,000-MILE AFRICAN TOUR.

DO-IT-YOURSELF SAFARI

Hard Way to See Africa

Matt Majka, Electro-Mechanical Division and his family saw Africa the hard way—in a do-it-yourself safari.

As part of a round-the-world trip they rented a VW bus in Nairobi, Kenya, and started trekking through the wilds without guides and with only a vague idea of where they were going.

"The first I realized we might be undertaking something foolish," he recalled, "was when I told the man who rented us the bus where we were heading. He gave me a thoughtful look and turned to his assistant. 'Better throw in some extra spares,' he said."

He thought they could just follow the roads. The roads proved to be deep rutted dirt that dwindled to nothing in places. At one point all he could find was a single set of tracks cutting across an area of thick grass.

"On the way we almost ran over a lioness with some cubs. She wasn't happy with us at all, and said so with an angry roar. While we went through five national parks and game preserves, we saw more animals outside the preserves than inside," he said.

They went north toward Mount Kenya and then circled back, crossing the equator twice, to Kilimanjaro. The entire route covered 1,000 miles. During this time they passed through only four towns.

"You are really on your own in the back country," Matt said. "If you get lost, that's your tough luck. For stretches of at least 60 to a 100 miles, we saw no people, only animals."

Once they did get lost. He kept driving around until he saw some mud huts with thatch roofs. They were Kenya back country Masai warriors and none could speak English. From here they kept driving with no idea where they were going or where they were, until they met a British hunter. He looked and sounded like something out of a movie, but he knew the country and was able to get them on the right road.

Bad Roads

Their greatest difficulty was climbing the mountains. In addition to bad roads, the engine of their bus starved for air in the high altitudes. "I thought several times I was going to have to get out and push," he said.

Matt and Faye Majka were accompanied by their daughter, Marsha, and her husband, Bill Lueck. Their entire trip covered Portugal, Spain, Italy, Greece, Africa, Ethiopia, Bangkok, Singapore, Australia, and Hong Kong, but of it all they remember best their 1,000-mile do-it-yourself safari in Africa.

HAWAIIAN HOLIDAY

The Northrop Travel Club has scheduled a meeting for tomorrow evening, Oct. 19 at 7:30 p.m. in the Plant Three cafeteria to discuss the yearend holiday trip to Hawaii, it has been announced by Jeanne Andrecht, Travel Club commissioner.

The club tour departs Dec. 23 and returns Jan. 1. During the 10-day period they will visit four islands. The cost is $376.

A $50 per person deposit is required with the balance due by Dec. 6.

SPACE FAIR

The thirteenth annual Space Fair will be held at Point Mugu Oct. 21, 22, and 23, according to Navy Space Fair officials.

Center of the activity will be a 40-acre midway featuring exhibits covering all facets of aerospace programs in the United States today, including a moon rock and many of the nation's newest and fastest aircraft.

Admission is free.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Volkswagen, 1968 squareback, r/h, $1,050. 213-375-9397, 213-375-2091.

Volkswagen, 1968 Fastback, $900. 213-763-7128.

Volkswagen, T Body, fiberglass, new tires & top, ap.p. whls., $1,500. 213-328-7534.

Volkswagen Camper, 1972 Westphalia, 16,000 mi., radio, $3,450. 213-375-3632.

Chevrolet Van, 1967, new eng., $1,200. 213-679-8397.

Ford, 1971 LTD Brougham, 17,500 mi., AM-FM stereo, a/c, p/s, p/b, $3,300. 213-926-7624.

Pinto, 1972 Runabout, many extras, $2,150. 714-827-2908.

Corvette, 1966 Stingray Fastback, 427 cu. in., new eng., p/w, p/b, 4-spd., $1,900. 213-896-9369.

Fiat, 1971, $1,350. Box 1001.

Ford, 1968 Bronco, 4-whl. drive, C.B. radio, $2,100. 213-881-4753.

Rambler, 1960 American, auto. trans., 6, $150. 213-329-2330.

Dune Buggy, Corvair pwr., auto. trans., extra eng., trans. & transaxle, $500. 213-928-3237.

Motorhome, 20′ Pride-N-Joy, on 1972 Dodge chassis, self-contained, sleeps 6, auto. trans., p/s, p/b, a/c, $9,675. 213-679-0710.

Truck, 1968 Chev., 8′ o/cab camper, 27,000 mi., a/c, p/b, p/s, r/h, 6-ply tires, $2,795. 213-676-5219.

El Camino, 1959, $550. 213-676-0935.

Station Wagon, 1972 Gran Torino, a/c, p/b, p/s, $3,500. 213-382-5575.

Chevrolet, 1968 Impala SS, all power, a/c, $1,300. 213-372-1778.

Dodge Dart, 1966, $650. 213-679-3275.

Toyota, 1970 Corona, auto., a/c, 50,000 mi., $1,550. 714-892-7174.

Chevrolet, 1965 Supersport, auto., console, p/s, p/b, r/h, $500. 213-679-3889.

Pontiac, 1967 GTO, a/c, 8-track, $1,600. 213-377-6658.

Chevrolet, 1966 van, camper equipped, bed, ice box, AM-FM radio, $1,150. 213-670-5486.

Volkswagen, 1963 delux camper van, 1500 eng., side tent, ice box, sunroof, $1,150. 213-391-5046.

MG Midget, 1968, h/top, wire whls., heater, tonneau, $1,000. 213-672-8490.

T-Bird, $1,500. 213-677-8410.

Dune Buggy, 1972 Corvair pwrd., new tires & top, st. licensed, $1,000. 213-831-0057.

Street Buggy, full length VW, f/glass body, h/top, $900. 213-645-3381.

Station Wagon, 1969 Caprice Kingswood Estate, $2,250. 805-498-2721.

Austin America, 1969, 4-spd. auto., $690. 213-644-1690.

Miscellaneous For Sale

Corvette 3rd Member, 4.56 positraction, $80. 213-341-5807.

Ranch, 20 acres, w/house, 4-car gar. at Reedley, Calif., mile from Kings River, hr. from Sequoia Nat'l. Pk., $32,000. 213-674-5953.

Gun, P38, 9MM, 1943 by Mauser, matching s/n & parts number, $125. 213-676-5787.

Bicycle, 20″ wheels, incl. training whls., $10. 213-675-6397.

House, 3-bdrm., den, 1¾ baths, cpts., dps., landscaped, 5% or 10% dn., Holly Park area, $29,950. 213-321-9658.

Wheels, split rim, 5, for ½ ton Ford pickup, fit 7.00x15 tires, $125. 213-644-2941.

Coffee Table, w/2 end tables, rectangular no-mar, $50. 213-374-7625.

TV, RCA color, console, $150. 213-866-4104.

Mobile Home, 20x57½ Royal Lancer, adult park, Torrance area, $12,750. 213-830-5024.

Table, maple, 40″ dia., $10. 213-376-4831.

Mobile Home, 10′x46′ w/30′ add on, cpts., bltins, $5,500. 213-534-3968.

Bar, 8′, maple, 4 stools, $450. 213-679-6782.

Boat, 15′ Wizard fbr. gls., 35 h.p. Merc. Thunderbolt ign., trailer & access., $600. 213-324-1908.

Tape Recorder, Akai Roberts M-7, 4-track stereo, $150. 213-645-6494.

Miscellaneous For Sale

Humidifier, $50. 213-677-0518.

Houses, 2 2-bdrm., frame stucco on lge. 60x150 R-3 lot, in Harbor City, fenced ind. yds., gars., $36,500. 213-326-5566.

Air Conditioner, window-type, Westinghouse, 14,000 B.T.U., 110 V.A.C., used less than 3 mos., $160. 213-531-3872.

Trailer, for hauling motorcycles, $25. 213-671-0357.

Patio Table, 4 benches 42″ square, redwood, $15. 213-530-3432.

Piano, Howard spinet, walnut, $500. 714-826-2094.

Motorcycle, 1966 Honda Super Hawk, 32 h.p. 338 cc, $175. 213-547-4141.

Knife, elec., Hamilton Beach, $5. 213-370-5031.

Shotgun, 20 ga., w/choke, bolt action, Mossburg, $40. 213-644-3125.

Mini-Bike, 1971 Flexo Big Bear Scrambler, 3 h.p., $100. 213-322-6203.

Motorcycle, 1970 Honda 350, custom forks, many extras, $650. 213-670-2098.

Cornet, Olds, $75. 213-325-1190.

House, lge. 2-bdrm. & family rm., cor. lot, $31,900. 213-675-4597.

Air Brush Outfit, Thayer Chandler Mod. A brush, CO2 tank, reg., hose, $35. 213-599-7009.

Dog, St. Bernard, female, AKC, 10 mos. old, shots, $100. 213-834-1812.

Air Conditioner, Rheem, 5-ton, 2 blowers, condenser & venting, $800. 213-679-3739.

Piano, Starr, upright grand, $200. 213-371-2129.

TV, b&w console, 21″, $59. 213-325-5245.

Sewing Machine, portable, $35. 213-677-7421.

End Tables, walnut, $10 ea. 213-541-3000.

Pups, Springer Spaniel, AKC, $75. 213-370-9558.

Tires, tubeless, 4, 13″ rim, $20. 213-831-5304.

Motorcycle, 1972 Yamaha, 100 Enduro, under 50 mi., $395. 714-925-7365.

Bicycle, 10-spd., w/generator, 6 mos. old, $55. 213-325-8932.

Boat, 16′ Utility, 35 h.p. Evinrude, lge. wheel trailer, $400. 213-379-5592.

Home, Hermosa Bch., w/upstairs bdrms., rear gar., basement, other items, $36,900, Box 1002.

Cassette Car Stereo, player, recorder, 8 tapes, 2 spkrs., $75. 213-291-6075.

Motorcycle, 1972 Harley-Davidson Sportster, semi-custom, 1,500 mi., $1,800. 213-530-5076.

Drafting Machine, Bruning 2700 w/Dazor lamp, $80. 213-677-6204.

Dryer, elec. G.E. Delux, $65. 213-530-3666.

Bicycle, 26″ 3-spd., drop handle bars, other access., $35. 213-542-6716.

Storage Cabinet, sheet metal w/5 shelves, 8′h.x3′w.x2′ deep, $25. 213-323-3528.

Acreage, 2½ acres, Antelope Valley, water & elec. to prop. cor., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

Motorcycle Trailer, hvy. duty, hauls 3 bikes, $100. 213-323-2358.

Voltmeter, vacuum tube-type, RCA Senior volt ohmyst w/probes, $25. 213-363-2630.

Surfboard, 6′10″, $50. 213-374-8608.

Dining Room Chairs, 6, $54. 213-860-3022.

Couch, 7′, brown, $50. 213-377-5935.

Travel Trailer, 26′, 1969 Monitor, Eastern coach, self-contained, sleeps 6, 17′ awning, $3,700. 714-842-4688.

Kitchen Stove, w/see through oven, $30. 213-939-8053.

Stereo Console, 6′ Med. style, Fisher 500 rcvr., 2 12″ spkrs., Garrard changer, $190. 213-392-1447.

Boat, 10′, fiberglass, 5 h.p. motor, oars, $150. 213-671-1660.

Rug Shampooer, Shetland-Lewyt, floor polisher & Regina electrikbroom, used twice, $20 ea. or $35. 213-644-3922.

Ping Pong Table, ¾″ table, fold up w/ casters, access., $50. 213-675-4239.

Saxophones, 2, alto & tenor, $100 ea. 213-423-1363.

Baby Bed, swing, other items, $50. 213-675-6020.

Chain Saw, McCulloch Mini-Mac 6, $135. 213-370-0824.

TV, 21″ b&w, Packard Bell console, $15. 213-374-8645.

Oven, AMC bake & broil, used once, $15. 213-326-0340.

Dresser, 4-drwr., $10. 213-679-5177.

Wall Mirror, 36″x48″, $40. 213-675-1000.

Miscellaneous For Sale

House, 2-story, 3-bdrm., extra lge. den, cpts., cov. patio, near new Carson shopping mall, $33,900. 213-635-7942.

Luggage Rack, lge. roof-type, canvas bag, $15. 213-375-8536.

Crib, $8. 213-676-0666.

Communications Receiver, Hallicrafters SX-99 all-wave, $40. 213-377-4623.

TV, portable, b&w all-channel, stand, Emerson, $40. 213-329-6091.

Day Bed, $15. 213-324-7059.

Hobie Cat 16, 1972 w/trlr., fully equipped, $1,700. 714-826-6065.

Living Room Set, 6-pc. Danish modern, $35. 213-831-1745.

Bowling Shoes, ladies, size 5½-6, $4. 213-360-0604.

Bicycle, boy's, Schwinn, 20″ Stingray & surfboard, 8′10″ Greg Noll, $30. 213-378-2790.

Boat, 1971, 15½′, 650 Merc. motor w/ approx. 50 hrs., all C.G. approved, many extras, trailer, used 1 season, $2,300. 213-835-5377.

Crib, white, $15. 213-378-6415.

Aquarium, 10-gal., w/all equipment, $18. 213-327-6918.

Piano, upright, oak finish, $175. 213-498-2300.

Parts for Renault dune buggy, eng., transaxle, front end, tube frame, whls., $80. 213-821-9110.

Skis, Kastle CPM spec. 200 mm w/poles, Lang boots, size 10 m., $125. 213-973-0367.

Tripacer, 150 h.p., annual done 8-72, eng. 1180 hrs. s.m.o.h., Narco MK-12A & VOA-4, full panel, $4,100. 213-834-1882.

Motorcycle, 1971 Triumph Bonneville, 650 cc, take over pymts., $1,100. 213-370-6611.

Piano, upright, modern refinished, $170. 213-696-7529.

Chairs, Sheffield, moss green velvet, 1 is swivel rocker, $180. 213-644-4656.

Record Player, console, stereo & radio, w/ extra spkr., $60. 213-638-8250.

Skis, Head, 2 pr. w/bindings, $25 pr. 213-530-4207.

Home, tri-level, 4-bdrm., 3 bath, 2,009 sq. ft., copper plumb., bltins, 6 yrs. old, 9 mi. from Northrop $42,950. 213-534-0346.

Sleeper-sofa, 7′, $50. 213-377-9723.

Divan, & chair, rock maple w/matching end & dropleaf table, $125. 213-679-3832.

Chair, uphol. w/lemon yellow Chinese pattern, almost new, $50. 213-326-0124.

House, Hollypark 3-bdrm., 2 bath, den, rumpus rm., block to school, $30,950. 213-329-9510.

Wheels, 2 chrome, slotted, 15x5.60 4 ply tubeless tires, fit GM cars, $48. 213-833-3944.

Kittens, Siamese, avail. Oct. 23, Sealpoints, $15. 213-679-8095.

Wanted to Buy

Flying Gear, WWII, helmets, jackets, uniforms, both Allied & Axis. 213-375-4312.

Rear Bumper, & right hand quarter panel for 1965 Ranchero. 213-328-3306.

Photo Enlarger, 35mm developing & printing equip. 213-326-9156.

Tool Chest, 6-10 drwr., machinist-type, reasonable. 213-323-4257.

Stove, pot belly or wood burning. 213-676-3050.

Free (To Be Given Away)

Pup, mixed Huskie, 10 wks. old. 213-834-7716.

Pup, cocker spaniel & collie, 12 wks. old, female, white. 213-830-6956.

Pups, 3 f., 7 wks., 6 m., 5 wks., mixed cocker, doxie & lab., parents under 25 lbs. 213-375-7978.

Rentals Offered

Apt, 1-bdrm., close to Northrop, comp. furn., enc. carport, $145 mo. 213-673-2787.

Apt, 1-bdrm., unfurn., sub. parking, pool, 10 min. to Northrop, Lawndale, $150. 213-679-5584, 213-670-6084.

Cabins, Lake Gregory & Crestline, sleeps 6, $65 wk. 213-821-8150.

Cabin, Big Bear, Moonridge, sleeps 4, family only, $75 wk., $30 wkend. 714-528-2810.

House, 2-bdrm., 1½ tile baths, bltin stove, new cpts., enc. gar. w/storage space, unfurn., $190 mo. 213-679-5780.

House, 1-bdrm., bltin stove & refrig., cpts., dps., carport, gar., ¾ mi. from Northrop, no pets, adults only, $155 mo. 213-532-1190.

Cabin, near Lake Arrowhead & Running Springs, sleeps 4-5, $35 wkend, $90 wk. 213-370-7105.

RECORD CHECK

Northrop Credit Union statements of accounts were distributed recently along with the auditor's notice of record verification.

Members who did not receive them are asked to contact John B. Knight & Co., 2926 Santa Monica Blvd., Santa Monica, CA 90404. Queries should include the member's name, address, account number and mention of Northrop Credit Union.

Rentals Offered

Cabin, Moonridge, 3-bdrm., 2 baths, family only, $125 wk., $50 wkend. 213-326-7232.

Condominium, 2-bdrm., Palm Springs area, furn., $100 wk., $60 wkend. 213-327-8994.

Cabin, Lake Arrowhead, No. Shore, pvt. dock, $125 1 wk., $200 2 wks. 213-375-2255.

Cabin, Big Bear, f/place & f/a, cpt., golf, ski, $20 day, $100 wk. 714-595-3968.

Vacation Home, Bass Lake, $150 wk. 213-374-3702.

Cabin, Green Valley Lake, $45 wkend. 213-320-2002.

Mountain Home, Big Bear City, 2-bdrm., furn. incl. linens, $35 2 nights, $100 wk. 213-823-1788.

Mountain Home, Big Bear Lake, 2-bdrm., furn., all utils., sleeps 8, $100 wk., $45 wkend. 213-325-8267.

Apt, 2-bdrm., furn., utils. pd., walking distance to Northrop, $185 mo. 213-644-0011.

Apt, 2-bdrm., unfurn., cpts., dps., bltins., pool, adults, no pets, $160 mo. 213-325-2512.

Apt, 2-bdrm., unfurn., 2 bath, gar., Inglewood, $225 mo. 213-291-7392, 213-552-1985.

House, 3-bdrm., unfurn., 1 yr. lease, $210 mo. 213-425-6221.

Personals

My family & I wish to express our thanks for the flowers & expressions of sympathy at the time of the death of my sister, Phyllis Simon. MARION ST. AMANT.

Our sincere appreciation for the beautiful flowers & kind expressions of sympathy on the recent passing of our beloved son, Richard. MR. & MRS. JUNJI SARASHINA & FAMILY.

Would like ride to & from Northrop, especially ride home, 7:30 a.m.-4:30 p.m., live in Hermosa Beach, will help pay for gas. Air Force office ext. 1948.

Interested in car pool, 7:30 a.m.-4:12 p.m., from vicinity of Buena Park-Cypress-Los Alamitos area. 714-827-1082.

My sincere thanks for your help & expressions of sympathy during the prolonged illness & passing of my husband, Bill. LOU HIGBEE.

To our many friends at Northrop, our sincere appreciation for the floral tribute & the many kind words of sympathy at the recent death of my mother. LYLE CLAYPOOL FAMILY.

Ride wanted, 7 a.m.-3:42 p.m., West L.A. near Venice & Centinella. 213-390-3761.

I want to thank all of my friends at Northrop for their thoughtfulness during my recuperation from my accident. NANCY DICK.

My deep appreciation & thanks to all my friends & co-workers at Northrop for the lovely luncheon, gifts & good wishes upon my retirement. DOLORES MOOR.

To all of you who made my retirement such a beautiful, memorable occasion, I wish to express my deepest appreciation. VIOLA HANSEN.

I wish to express my sincere thanks to all my Northrop friends & co-workers for the wonderful retirement party & gift. GERTRUDE LEHMAN.

Thanks for the memories. W. H. BUSTER.

Thanks to all my friends at Northrop for making the time spent here a time to remember & for the gifts upon retirement. Try it, you'll like it. BOB BLAKENEY.

I wish to express my sincere appreciation & thanks to all my friends at Northrop who gave me a wonderful retirement party & gifts. ROBERT S. LUXTON.

Dog, peek-a-poo, 1 yr. old, seeks company of Pekingese or poodle lass. 714-531-6738.

For Sale or Trade

Boat, 13′, oars, anchor $65 or trade for 8mm movie equipment. 213-371-5072.

Tuner, Harmon Kardon AM-FM, 10 W. amplifier, 15″ coaxial spkr. mounted, $100 or trade for arc welder. 213-545-7149.

CYCLES AND SONGS

Unique Summer Vacations

Cindy and Randy Certain, children of EMD's Terry Certain, made unique trips this summer that individually spanned 13,000 miles.

Cindy, 16, rode a bicycle from San Clemente, Calif., to Washington, D.C., in a group of 40 who made the cross-country tour as part of the National Heart Association's program for better health through exercise.

During the trip she averaged 110 miles by bicycle each day and camped out at night.

When she first decided to go on the trip, Cindy—although she could ride a little—did not even own a bicycle. With dad furnishing a new 10-speed bike and her savings furnishing the $200 expense fee, she started practicing before the start. She was one of the 30 of the original 40 who finished up at the White House after the 2,952 mile ride.

According to her father, Cindy returned home ready to sell the bike. She claimed to have had enough bike riding for a lifetime, but after a few days thinking over the trip, she changed her mind and is now planning a future bike ride through Europe.

Randy, 14, made his 10,000 mile trip as a member of the First Baptist Church of Pomona choir. He played cornet in the choir accompaniment.

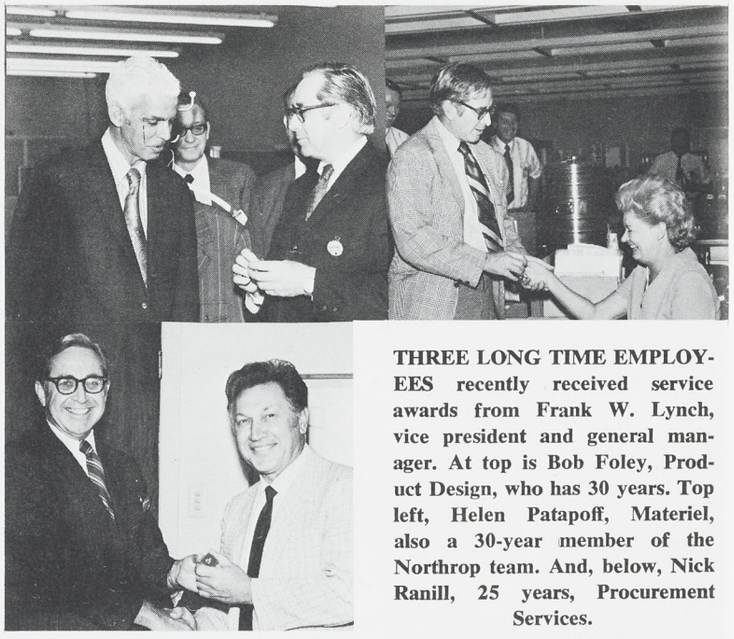
His tour went through the northern states and into Canada, then south to Mexico and back to California.

The choir, composed entirely of teenage performers, sang at churches each night of the trip. Then members of the congregation took a youngster each home for the night.

"Each family fed us like they thought we hadn't eaten since we left," Randy reported. "We started off each morning with pancakes, bacon, eggs, and cereal—and then they brought in the breakfast!"

His most vivid memory of the trip was an old-fashioned Fourth of July celebration, such as people enjoyed 50 years ago, which he attended in Zanesville, Ohio.

In addition to churches, the choir—called The Overtones—visited Air Force and Navy bases, appeared on TV in New Orleans, and visited Disney World in Florida.



THREE LONG TIME EMPLOYEES recently received service awards from Frank W. Lynch, vice president and general manager. At top is Bob Foley, Product Design, who has 30 years. Top left, Helen Patapoff, Materiel, also a 30-year member of the Northrop team. And, below, Nick Ranill, 25 years, Procurement Services.

Olson Needs Cars for Test

Olson Laboratories, needs 25 1960 to 1965 volunteer cars to complete the Vacuum Advance Disconnect Program for the California Air Resources Board.

Volunteers will be given a $10 check and a 1972 Malibu loaner car for use during the 24-hour period their car will be in the test laboratory.

"We can use certain makes and models of American cars, except Corvair," Arlene Forker of Olson Labs said. "Ford products in the above category must have eight cylinders to satisfy constraints of the program."

Purpose of the program for the State of California is to determine if disconnecting the vacuum advance on automobiles—a suggested method of reducing vehicle pollution—will result in overheating on hot days.

Miss Forker emphasized that the test will not involve the volunteer cars in any strain.

"They will be run in a controlled temperature chamber on a chassis dynamometer to simulate 50-mile-per-hour steady state operation on a load equivalent to a three per cent grade. The test chamber will be conditioned to simulate driving conditions in 80, 90 and 100 degree temperatures."

Volunteer cars will be adjusted to manufacturer's specifications and then given a base line temperature test with vacuum advance connected. This will be followed by an identical test with vacuum advance disconnected.

Owners without retrofit smog devices may volunteer their cars by calling Miss Forker at ext. 513.

SUNNI WALTON

Singer Sunni Walton Will Headline Management Club Dinner Dance

The November annual Management Club Dinner Dance will be a "Sunni" affair, according to Art Eckel, club president.

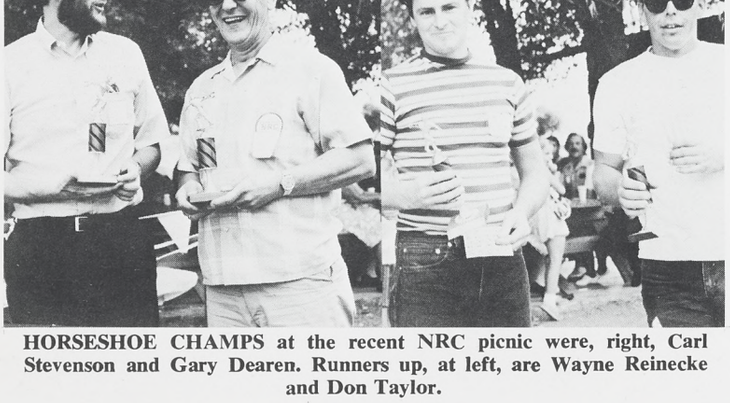
"Sunni" being Sunni Walton, a red-headed Scotch-Irish lass whom leading entertainment reviewers have lauded for her beauty, singing and comedy.

Sunni is part of the entertainment for the dinner dance which will include Carroll Wax's Orchestra. Mr. Wax has a musical background that includes several years with 20th-Century Fox and Paramount. His orchestra has played for many conventions, leading Southland organizations and for the Academy Awards Ball.

The Dinner Dance is set for the Newporter Inn's Monte Carlo Room on Nov. 18. Admission is open to Management Club members, guests and friends.

And as Mr. Eckel pointed out, "Just about everybody is the Management Club's friend."

ROBERT EATON, right, receives a Northrop Merit scholarship award from his father, Bill Eaton, program manager, Northrop Langley Operations, Hampton, Virginia. Robert was chosen for the honor by the National Merit Scholarship Corp. in competition with other students. He will use the award to enter Vanderbilt University.



HORSESHOE CHAMPS at the recent NRC picnic were, right, Carl Stevenson and Gary Dearen. Runners up, at left, are Wayne Reinecke and Don Taylor.

NORTHROP NEWS

ELECTRO-MECHANICAL DIVISION EDITION

Published monthly by Northrop Corporation, Los Angeles, California | Vol. 30, No. 11 | November 1972

ARNOLD MONREAL demonstrates use of a fire extinguisher under the watchful eye of instructor John Burke during a recent class for the division emergency crew. Others who attended the class were John Barth, Bob Boostrom, Larry Burchartz, Bill Conliffe, R. Compton, Riley Eledge, William Hoppe, Lon James, Chuck Johnson, Dick Metzger, Pete McElvravey, Eddie Paul and Jack Smith.

NORTHROP SERVICES, INC.

Now in the 'Fish Business'

Northrop Services Inc.'s Eastern Operations Department is now in the "fish business."

The Eastern Operations Department, located in Arlington, Va., has obtained two contracts from the National Maritime Fisheries Services (NMFS), a line organization of the newly organized National Oceanic and Atmospheric Administration.

The first contract involves preparation of a program review and planning document for the Fish Protein Concentrate (FPC) program. FPC is an odorless and tasteless food supplement of high nutritive value, hygienically prepared from fish in which protein and other nutrient materials are more concentrated than they are in fresh fish.

FPC is thus designed to help meet the world's "protein gap."

Second Contract

The second "fish contract" is to design and begin implementation of a Project Selection, Reporting and Control System for the National Marine Fisheries Services Division of Market Research and Services. The system designed will include criteria and procedures for project proposal evaluation and project leader selection, formats for system documentation, selection and control methodology, planning requirements, performance reporting procedures, provisions for management review and system implementation support.

M. B. Michelson is NSI's project leader on both contracts, and J. E. Crownover, Jr., has primary marketing interface with NOAA/NMFS.

Armstrong Briefs Science Advisor

Northrop's Bill Armstrong was one of four aerospace engineers working with California city governments who briefed Dr. Edward David, presidential advisor on Science and Technology, on the benefits and operation of the NASA-Science Foundation "Four Cities Program."

Under the program a major aerospace firm has assigned an expert in program management to serve in an advisory capacity with city governments in Anaheim, San Jose, Pasadena, and Fresno. The engineers utilized aerospace systems management techniques to solve urban problems. Mr. Armstrong represents Northrop in the Anaheim phase.

Great Interest

Dr. David came to California to get firsthand information about the program, which has excited wide public and government interest. In his discourse with Dr. David, Mr. Armstrong pointed out that a large measure of the program's success to date was due to the affiliation of the four engineers with major aerospace companies who enthusiastically supported them and the program.

Division Builds New Model of Zoom Lens

The Electro-Mechanical Division's Electro-Optical Department is building a new model of the world's largest zoom lens for The Boeing Company.

A model of the 50-to-1 dynamic range zoom lens was previously built for Boeing in 1966, and a 10-1 model was built for the Northrop Differential Maneuvering Simulator, installed at NASA's Langley Research Center, Va., in 1971.

The new lens will be used by Boeing as a nucleus of an electro-optical guidance simulator being built for the Army Missile Command, Huntsville, Ala. The Northrop zoom lens projects target images on a screen at four to 200 times the normal size of film images during the simulated missile strikes.

The Northrop-built zoom lenses are completely optically compensated systems, with only one moving part. Conventional zoom lenses are mechanically compensated and require many moving parts.

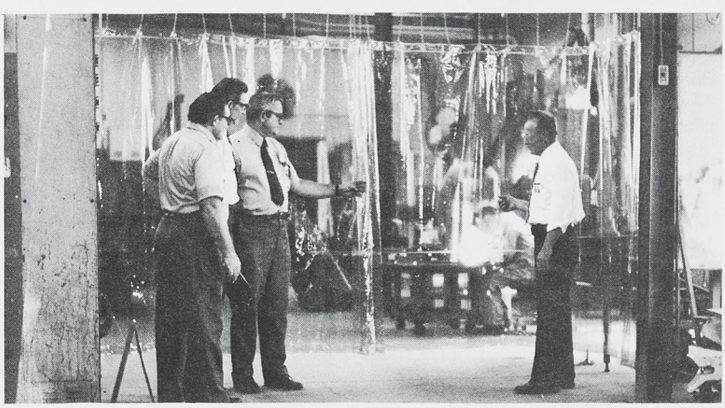
Images are kept in focus at all times during the zooming operation, and deterioration of parts due to wear is eliminated.

The 50:1 system includes a 2,500-watt xenon light source for illumination with a movable condenser system which fills the entrance pupil of the zoom lens at all magnification ranges.

The lens is 78½ inches long and weighs 370 pounds. It includes 23 glass elements ranging upward from 10 inches in diameter. The glass alone weighs 160 pounds, and the cemented ele-

(See ZOOM LENS, page 6)

LAS MALERBAS, a fancy-stepping group of Flamenco dancers, will be one of the feature attractions at the Northrop Management Club Annual Dinner Dance. The dinner dance will be Saturday, Nov. 18 in the Monte Carlo Room of the Newporter Inn. The $18 per couple tab includes, according to club president Art Eckel, "a superb dinner, outstanding floor show, free refreshments at every table and dancing to a swinging band." The floor show also includes Sunni Walton, vocalist-comedienne.



ONE OF SEVERAL health inspection teams checks on the newly installed safety curtain which surrounds the weld area. The curtain protects the eyes of passersby by absorbing ultraviolet light and increases safety. Its installation is part of the division's OSHA (Occupational Safety and Health Act) program. Team members are, from left, M. W. Hawkins, Eddie Paul, Cal Seay, and Bob Russell. Behind curtain are Art Modica, welder, and Bob Driscoll.

DR. JOHN S. FOSTER, JR., presents award to G. Ronald Wenninger. With them are Mrs. Wenninger and Bob Wenninger.

San Diego Office Takes Part in Open Sea Dive

Four divers assigned to Commander Submarine Development Group One in San Diego successfully completed an open sea saturation dive at the depth of 1,010 feet near San Clemente recently.

The dive was part of an operational evaluation of the Navy's Deep Dive System, Mark 2.

Northrop personnel from the Ocean Engineering Office, San Diego, participated in the program. They are W. D. Buckbee, manager of the San Diego office; Ray Flynn, who provided on-scene technical support; Lee Wearda, who assisted in writing the operations evaluation plan; and Walt Bennett, who assisted in the preparation of training documentation.

In saturation diving, man is subjected in a decompression chamber to a pressure equal to the known working depth while he is still on the surface. This saturates his body with breathing gas, helium-oxygen. He is then lowered to his undersea working depth in a Personnel Transfer Capsule that maintains the saturation pressure. He then leaves the capsule to work, wearing a hot water suit and modified lightweight underwater breathing apparatus.

When the diver is tired, he returns to the surface via the Personnel Transfer Capsule to sleep or eat in the Deck Compression Chamber, but remains at underwater pressure during this time. He may then return to depth to continue his work. He may work for days or weeks and pay a decompression penalty only once.

Under conventional diving methods, the diver wearing heavy underwater equipment is lowered to a working depth where his activity is restricted according to depth. After each dive he must decompress before coming to the surface.

Saturation diving permits a diver to make repeated dives. Then regardless of whether the diver remains under pressure for hours, days or weeks, only one decompression period is required. This greatly increases the amount of time that a diver can do useful undersea work.

The general objective of the recent 1,010 foot dive was to prove the feasibility of surface supported saturation diving in the open sea to a depth in excess of 850 feet. The diving systems are intended to develop the capability of man to do useful rescue and salvage work at deeper ocean depths than is possible with conventional diving gear.

The maximum emergency depth authorized for conventional SCUBA diving in the Navy is 200 feet. The maximum conventional hard hat diver depth attained by the Navy is 561 feet.

Submarine Development Group One is the Navy Command assigned the mission of operating as the permanent operational command in the Navy for prosecution of Deep Submergence Systems development.

It is commanded by Captain Samuel H. Packer, USN. Commander D. G. Disney, USN, who is head of the Diving Systems Division of Commander Submarine Development Group One Staff, was the officer in tactical command of the project evaluation.

TO WENNINGER

Civilian Service Medal

G. Ronald Wenninger, manager, Laser Systems Laboratories, Northrop Research and Technology Center, has been awarded the Secretary of Defense Meritorious Civilian Service Medal.

The award was made in recognition of Mr. Wenninger's outstanding service during the two years he was associated with the office of the director of Defense Research and Engineering before joining Northrop in September 1972.

The citation noted that Mr. Wenninger made outstanding contributions to the planning, initiation and conduct of research and development programs of significant impact on the defense of the United States.

Mr. Wenninger was responsible for, and contributed in a major way to, the long range planning and mission analysis as it relates to tactical warfare programs performed by the three services, the citation said.

During his last year in the Pentagon, Mr. Wenninger led a special study for the director, Dr. John S. Foster, Jr., concerning tactical nuclear weapons R&D. Regarding this effort, the citation noted, "his leadership has resulted in a significant study which should meet the requirements of the technical community for direction and guidance toward the solution of a myriad of complex issues associated with this critical area of our national defense."

HALLICRAFTERS CO. RECEIVES CONTRACT

The Hallicrafters Company, a wholly owned subsidiary of Northrop, has received a $5.1 million contract to provide infrared countermeasure pods for U.S. Air Force tactical aircraft.

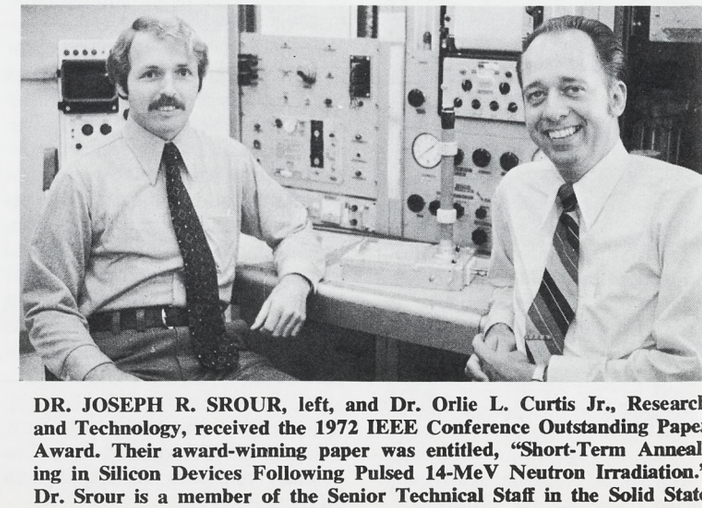
The firm fixed price contract, let by the Air Force's Aeronautical Systems Division, Wright Patterson AFB, Ohio, also calls for Hallicrafters to provide overseas maintenance support, initial spare parts, aerospace ground equipment, provisioning spares, and provisioned depot support services and data.

Northrop Reports Quarter Earnings

Developing an upward trend that began early in 1972, Northrop reported increased earnings for the third quarter ended Sept. 30, of $2,846,000 or 66 cents a share on sales of $146,822,000 compared with year-earlier results of $2,818,000 or 61 cents a share on sales of $133,024,000.

For the nine months, net income was $7,927,000 or $1.79 a share on sales of $414,448,000 compared with $9,375,000 or $1.99 a share on sales of $415,232,000. Current backlog is approximately $735 million compared with $520 million a year earlier.

Commenting on the third quarter results, President Thomas V. Jones pointed out, "this report supports the statement made at the company's annual meeting in December that late 1971 and early 1972 would see the 'bottoming out' of the Northrop sales and earnings picture, and that new product business, the acquisition of several key subsidiaries and increasing sales of the company's F-5E International Fighter would begin to bring increased results for the company in the second half of 1972 and in 1973."



DR. JOSEPH R. SROUR, left, and Dr. Orlie L. Curtis Jr., Research and Technology, received the 1972 IEEE Conference Outstanding Paper Award. Their award-winning paper was entitled, "Short-Term Annealing in Silicon Devices Following Pulsed 14-MeV Neutron Irradiation." Dr. Srour is a member of the Senior Technical Staff in the Solid State Electronics Lab. Dr. Curtis is director of the Solid State Electronics Lab.

Aviation Leaders Honor John K. Northrop

John K. Northrop, pioneer plane designer and builder, and co-founder of Northrop Corporation, last month was inducted into the International Aerospace Hall of Fame, at that institutions annual Awards Banquet in San Diego.

Mr. Northrop was honored by world leaders in aviation on the 25th anniversary of the world's first supersonic flight. Brig. Gen. Charles E. Yeager, USAF, a member of the International Aerospace Hall of Fame, received special recognition at the banquet for the historic event when he broke the sound barrier in the bullet-like X-1 rocket plane on Oct. 14, 1947.

Forming the Company

Mr. Northrop, a native of Newark, N.J., joined in forming Northrop Corp. in 1939 and served as president and head of engineering and research as well. In 1952 he retired and has since been a consultant for a number of organizations.

He is one of the great figures in aviation in America today because of his contributions to the advancement of aerospace technology. Due to his pioneering inventiveness, the name Northrop is known and respected wherever airplanes are flown. He is one of that small group of pioneers who designed and built the early successful commercial airplanes and thereby paved the way for modern flight. He perfected the all-metal aircraft, and designed the Northrop Alpha, Beta, Gamma and Delta planes which pioneered smooth stressed skin metal construction in a commercial airplane. For the first time, and in one tremendous step, the useful life of an airplane was increased more than tenfold.

As head of engineering at Northrop Corporation, he was responsible for the design of seaplanes used by the Norwegian government in exile in WW II, the famous Flying Wing bombers, the Black Widow P-61 radar night fighters, the F-89 Scorpion all-weather interceptors and the Snark SM-62 intercontinental guided missile. He was one of the pioneers in the development of automatic celestial navigation, used to guide the Snark in intercontinental flight.

STANDING IN front of the Northrop YB-49 Flying Wing, left, is John K. Northrop, co-founder and past president of Northrop Corp. Mr. Northrop was responsible for the design of the Northrop Flying Wings. The Flying Wing was acclaimed the "world's most powerful bomber" when it made its first flight in October 1947. At the 1972 International Aerospace Hall of Fame Banquet, right, are Brig. Gen. Charles E. Yeager, USAF, left, and Mr. Northrop. Gen. Yeager received a special award for being the first man to break the sound barrier and Mr. Northrop was inducted into the Hall of Fame.

Many Honors

He received the President's Certificate of Merit in recognition of his contributions to the nation's defense in World War II and was selected in 1947 to deliver the Wilbur Wright Memorial Lecture before the Royal Aeronautical Society in London. He served as president of the Institute of Aeronautical Sciences in 1948 and is an honorary member of the American Institute of Aeronautics and Astronautics. He was awarded the Spirit of St. Louis Medal of the American Society of Mechanical Engineers for "meritorious service in the advancement of aeronautics," and he is a member of the Royal Aeronautical Society.

He is co-founder of the Northrop Institute of Technology, and was awarded an honorary doctor of science degree by Occidental College in 1948 and an honorary doctor of laws degree by Northrop Institute of Technology in 1970.

With the Prominent

Mr. Northrop's induction into the International Aerospace Hall of Fame places him on an honors list of many prominent persons of aviation and space history, including Amelia Earhart, Orville and Wilbur Wright, Wernher von Braun, Charles A. Lindbergh, John H. Glenn, Jr., Yuri A. Gagarin, and Alan B. Shepard.

The Hall of Fame, located in San Diego's Balboa Park, was chartered to honor individuals who have made significant contributions to aerospace progress and to provide the public an opportunity to learn of the work of these men and women of aviation and space history.

Discount Toys Are Available

Personnel Activities has made arrangements with two of the Southland's largest wholesale toy and game distributors for employees to purchase Christmas gifts at greatly reduced prices.

Northrop identification badges must be shown to make purchases at Pul-Wal, Inc., 1035 S. Grand, on Dec. 2, from 9 a.m. to 4 p.m. and Dec. 3, 10 a.m. to 4 p.m.; and the Southwestern Novelty Co., 330 S. Los Angeles St. on Dec. 9, from 9 a.m. to 4 p.m., on Dec. 10 from 10 a.m. to 4 p.m. Both locations are in Los Angeles.

SMOOTHSAYERS

The Smoothsayers Toastmistress Club is having a "demonstration meeting" Nov. 20 at 7 p.m. in the Northrop Recreation Club's clubhouse, Hawthorne. Anyone interested in learning procedures for conducting meetings, presenting programs, better methods of communication, and general self-improvement is invited.

Admission is free and refreshments will be served. For information contact Gay Dillard, (213) 870-7528 or Shirley Wilson, ext. 2259.

ARE YOU INVOLVED IN SERVICE WORK?

The community service activities of various Northrop organizations are a matter of record, but individual efforts are frequently overlooked.

In order to inventory those individual efforts, we ask that those Northrop employees who voluntarily participate in community service work complete the following survey and return it to: Northrop News, 170/40.

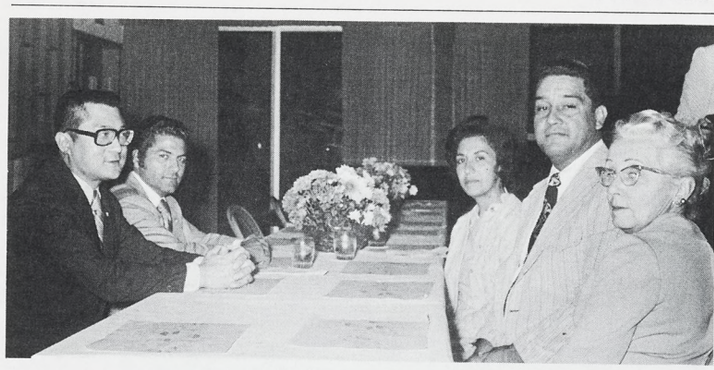
Enter the approximate number of man-hours you devote annually to community service. Base estimates on 1972 activities. Enter annual total on bottom line.

	Estimated Man-hours
Advisory or action bodies of local, county, state and federal governments—such as City Planning, State Development Programs, agencies of OEO, etc.	
Youth organizations—such as Boy Scouts, YMCA, Big Brothers, PAL, etc.	
Welfare organizations—such as Community Chest, Salvation Army, job training and placement, etc.	
Health organizations—such as Red Cross, hospitals, mental health associations, Easter Seals, UCP, etc.	
Civic improvement groups—such as neighborhood development, safety campaigns, get-out-the-vote drives, better laws, clean-up work, Urban League, etc.	
Public and/or private schools and colleges	
Church or religious organizations	
Other (describe)	
Total man-hours for public service, annually	

Name_____ Orgn._____

VISITORS

Mr. and Mrs. John K. Northrop are touring the Aircraft Division facility today as guests of General Manager Welko Gasich.



COMMUNITY MEETING with Tom Lee, Jesse F. Perez, Orange City mayor, Mr. and Mrs. Joseph Venegas, directors of Orange Mexican-American Friendly Center, and Mrs. Thomas I. Nalbach.

NORTHROP'S TOM LEE

Helps Mexican-Americans

Tom Lee, Ocean Engineering, San Diego, has formed a committee among members of the First Presbyterian Church of Orange who have expertise in systems engineering, proposals, contracts, housing, education and medicine to assist people of the El Modeno Mexican-American barrio.

In cooperation with the El Modeno community and the California Regional Medical Programs, Mr. Lee and his team of experts are assisting this under-privileged community in preparation of a Health Education Grant Application.

If approved by the Department of Health, Education and Welfare, this grant will provide urgently needed medical care and health education to medically indigent families of El Modeno.

This project is but a small part of a more comprehensive health care program currently under development. Mr. Lee and his committee also intend to evaluate other community needs such as housing, education and employment.

Mr. Lee said the way members of the committee have assisted him is a "splendid example of how talents acquired in industry can be applied to improvement of our communities and to bring hope to our less fortunate neighbors."

Strong Supporter

Mr. Lee is a strong supporter of professional, civic and religious organizations. He has been program chairman and councilor for the Marine Technology Society, and first vice president for the Santa Ana Community Concert Assn. He is an Elder of the First Presbyterian Church of Orange, and Skipper of the Los Kanchos Presbytery Mariners. He joined Northrop in 1957 at the height of the Snark program and participated in the development of inertial navigation systems.

NORTHROP ARTISTS, young and old were out for the Palos Verdes Art Association's annual Art for Fun(d)s Sake exhibition held each year at the Electronics Division in PV. Here are, from left, Bob Mack, with daughters, Robin, Lisa and Windy, Chuck Felder, Mrs. Bob Peck, Harold Leff, Carole Felder, and Jack Flannagan, from Electro-Mechanical Division; Dick Mosher and Ed Mosher, Aircraft Division; and kneeling in front, Bill Gray, Electronics Division. The dog is Barney Peck.

TOUGH 'SCIENCE' COURSE

For Traveling Students

Summer school for the four daughters of Gordon Bricken was a van that rolled 10,500 miles while making a figure eight journey up and down, and across the United States.

The "school's" curriculum included learning how money was made in the Denver Mint, how the West was won in Dodge City's exhibits, about our presidents at Lincoln's tomb and the Eisenhower Library, and—among many other things — a firsthand lesson in science when their van was struck by lightning in Florida.

The trip, which included Mr. Bricken's wife, Maureen, and his mother, Mrs. Kathleen Bricken, was intended as an educational jaunt for Barbara, 8, Mary, 7, Patricia, 5, and Victoria, 1.

Trip Begins

It began in Los Angeles and went up through Nevada, Utah and to Montana. Then cut south through Yellowstone to Texas and then due east to Florida and Disneyworld.

Here Mr. Bricken had to leave the tour temporarily to fly back to a Northrop meeting. Mrs. Bricken took over the driving chore, heading north through Georgia, Kentucky and Ohio.

Coming out of Florida she ran into a heavy electrical storm. Lightning bolts began striking the ground around the road.

"I felt like I had moved into a movie where bombs are going off all around the hero," Mrs. Bricken recalled.

Then suddenly lightning struck the van. It felt as if the vehicle had been hit by a giant's fist. The van shook. There was a tremendous flash of light, followed by the odor of burning canvas when the van cover was destroyed.

"My first thought was the children and their reaction," Mrs. Bricken recalled. "But they took it much better than I."

Mr. Bricken rejoined the group in Ohio, driving back through St. Louis, Kansas, El Paso, and returning to Los Angeles.

"We planned the trip as a sort of go-there geography lesson for the girls," he said. "But it turned out to be a series of lessons in so many things that we'd like to have a similar school every summer.

"However," he added reflectively, "while we learned the value of finding out about the country firsthand instead of reading about it in a book, I think we would all prefer to pass up the lesson in science. We want no more lightning."

Mrs. Ondrasek Wins Dance Contest

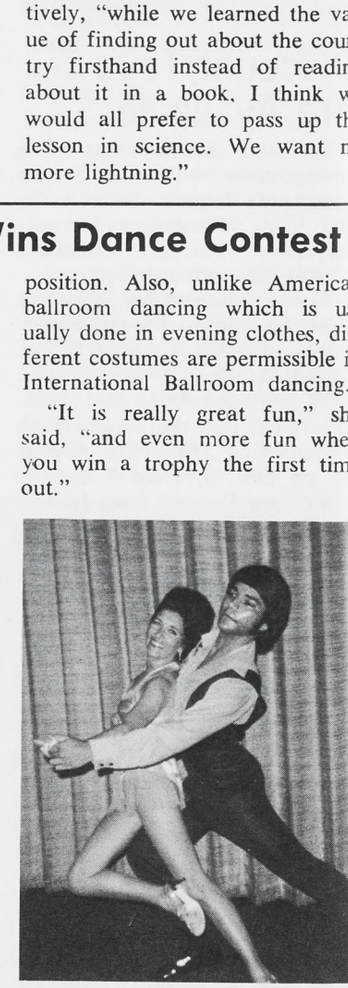
"That's what I want to do," said Sheila Ondrasek, Aircraft Division secretary, when she saw an exhibition of International Ballroom dancing.

And that is exactly what she did. In April Mrs. Ondrasek enrolled in a dancing school. Five months later she won two exhibition trophies, dancing with her instructor Don Martinez in a contest jointly sponsored by Victor Dru Studios and the Dance Teachers Association of California.

Her first trophy was for Best Exhibition, International Rhumba. The second was first runner-up in the American Free Style dancing. Judges for the contest included the internationally known English team of Cleve and Wade.

International Ballroom dancing, according to Mrs. Ondrasek, differs from ordinary ballroom dancing. It is based on English standards and is very precise, with the judges paying great attention to body style, carriage and foot position. Also, unlike American ballroom dancing which is usually done in evening clothes, different costumes are permissible in International Ballroom dancing.

"It is really great fun," she said, "and even more fun when you win a trophy the first time out."



Mrs. Ondrasek and partner.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Rambler Classic, 1964, auto., $250. 714-892-7174.

Datsun, 1971, 510 wagon, auto. trans., AM-FM radio, $1,750. 213-834-1812.

Chevy II, 1964, 4-dr., $375. 213-675-7740.

Volkswagen, 1960 Westphalia camper, $725. 213-677-6926.

Camaro, 1971, 350 V-8, a/c, radio, p/s, a/t, tape deck, $2,900. 714-522-0504.

Chevrolet, 1965 Impala S.S., 4-dr. 396, a/c, p/s, p/b, $525. 714-522-2740.

Dodge, 1965 Dart, 6 cyl., auto., rebit. eng., $450. 213-327-9191, 213-532-0122.

Pontiac, 1963 Grand Prix, a/c, fully powered, $450. 213-324-7059.

Pontiac, 1964, 2-dr. h/top, 4-spd., r/h, $300. 213-545-3128.

Mustang, 1970 fastback, pwr. d/brakes, p/s, $2,195. 213-379-8067.

Datsun, 1971 240Z, 9,000 mi., a/c, mags, $4,400. 213-645-0804.

Mustang, 1965, r/h, a/c, auto., p/b, p/s, $999. 213-695-1687.

T-Bird, 1957, p/s, p/b, 3-spd. stick & o/drive, $1,295. 213-329-3900.

Chevrolet, 1964 Impala, 4-dr. h/top, V-8, auto., p/s, $250. 213-322-3319.

Pontiac, 1969 station wagon, V-8, 3 seats, 38,000 mi., $2,700. 213-375-8536.

Buick, 1965 LeSabre, 4-dr. h/top, a/c, $395. 714-828-2857.

Camaro, 1970, Rally Sport, 350 V-8, p/b, p/s, r/h, $2,400. 213-326-3704.

Oldsmobile 442, 1969, 400 c.i.d. eng., 4-spd. trans., AM-FM radio, htr., p/b, $1,500. 213-320-0328.

Cadillac, 1964 Sedan De Ville, full power, $795. 213-675-8757.

T-Bird, 1956, full power, $1,900. 213-671-7272.

Camaro SS, 1969 4-spd., posi-traction, pwr. d/brakes, AM-FM radio, $1,700. 213-673-0416.

Pontiac, 1967 GTO h/top, d/brakes, a/c, 8-track, $1,200. 213-377-6658.

Lincoln, 1964 Continental, 4-dr. sedan, full power, a/c, $750. 213-882-0761.

Cadillac, 1971 Sedan de Ville, many extras, $5,500. 213-542-4872.

Pinto, 1972, 2,000 cc 4-spd., AM-FM-tape deck unit, $1,900. 213-541-1719.

Camaro, 1968, 4-spd., Holley carb., $900. 213-322-4180.

Ford, 1966 Fairlane, auto., p/s, V-8, $775. 213-374-2995.

Pickup, Dodge, w/8′ Aristocrat cabover camper, 1970 ¾-ton D200, 383 cu. eng., 4-spd. trans., many extras, $3,200. 213-588-3784.

Station Wagon, 1971 Dodge Colt, 4-spd., radio, a/c, $1,950. 213-674-4119.

Chevrolet, 1954 Suburban carryall, $265. 213-677-8543, 213-671-5029.

Winnebago, 1970 Chieftan, 22′, Dodge chassis, 20,000 mi., sleeps 6-8, a/c, Onan gen., many other extras, $10,800. 213-472-6052.

Volkswagen, 1966, 1300 series, $525. 213-645-3169.

Station Wagon, 1963 Fairlane, 9-pass., V-8, p/s, r/h, auto., $350. 213-671-4550.

Ford, 1971 LTD Brougham, 19,000 mi., p/s, p/b, a/c, $3,150. 213-926-7624.

Volkswagen, 1964, $499. 714-962-8127.

Chevrolet, 1968 Impala custom h/top, factory air, p/s, r/h, $1,495. 213-821-8150.

Miscellaneous For Sale

Shag Rug, shocking pink, 6′x9′, $25. 213-545-7149.

Skis, Hart Holiday, Geze bindings & boots, $100. 213-423-1363. C

Bunk Bed Set, 3 30″, mattress, $75. 213-675-4239.

Floor Pillows, 4 lge., $25. 213-675-1000.

Trailer, utility, 8′ long, 3½′ wide, 3′ h., spare tire, $150. 213-645-6494.

Tape Player, Elgin stereo 8-track port., $45. 213-324-1908.

Bicycle, 27″ 10-spd., many extras, $89. 213-542-6716.

Miscellaneous For Sale

Stroller, $10. 213-329-6091.

Trailer, 1968 Cardinal Low Line, $870. 213-675-4597.

Motorcycle, 1970 350 c.c. Honda, many extras, $650. 213-670-2098.

Cradle, Babyline, $40. 213-547-4141.

Flight Jacket, Northrop orange, lge., $18. 213-391-5046.

Electrikbroom, Regina, used once, $20. 213-644-3922.

Travel Trailer, 26′, 1969 Monitor, Eastern coach, self-contained, sleeps 6, $3,700. 714-842-4688. C

Beds, twin, spring, mattresses, white plastic h/boards, $20 ea. 213-675-6081.

Air Conditioning Unit, 1960 Cadillac Cpe. de Ville, removable, use in other autos, $325. 213-676-1580.

House, Hollypark, 3-bdrm., 2 baths, den, rumpus rm., $29,950. 213-329-9510.

Stove, modern, gas, $30. Box 1101.

Freezer, Coldspot, 17 cu.ft., 8 yrs. old, $75. 213-672-1853.

Fence, steel picket-type, 75′x2′ h. w/attach. post, $20. 213-323-3528.

Motorcycle, 1972 Stens dirt-type, Hodaka 100 eng., 5 mos. old, $275. 213-377-4972.

Rollaway Bed, $12. 213-923-9957.

Dryer, gas, Whirlpool, $25. 213-372-5508.

Motor, ⅓ h.p. elec., on & off switch, $10. 213-370-3821.

Refrig.-Freezer, Philco, 14.5 cu.ft., near new, $150. 213-638-6238.

House, 3-bdrm., 1¾ bath, cpts., dps., bltins, 5¼% G.I. loan, Holly Park, $31,250. 213-329-1952.

Mobile Home, 12x60, carport, 8′x36′ enc. patio, $5,500. 213-532-1344.

Dining Room Chairs, 6 Mediterranean style, $48. 213-860-3022.

Hood Lock Down Kit, delux rings & cables, fits Ford cars, $10. 213-375-1685.

Typewriter, 15″ Underwood manual, $25. 213-675-2331.

Pups, collie, $75-$150. 213-370-4475.

Organ, electronic Silvertone/Thomas 2-key board manual, Leslie, 3 yrs. old, $495. 213-324-9223.

Dining Room Table, maple, 4 chairs, $25. 213-549-2294.

Acreage, 2½ acres adjacent to Apple Valley, terms, some utils., roads, $5,950. 213-325-5609.

Pups, German shepherd, AKC champ., male $100, female $75. 714-536-6291.

Tires, 8.55x15 & 8.15x15, $15. 213-371-6758.

Pressure Cooker, Presto, never used, $12. 213-545-2577.

Boat, 15′, 35 h.p. Evinrude motor, 17′ trailer, many extras, $500. 213-398-8111.

Acreage, 2½ acres, Antelope Valley, water & elec., $400 dn., $45 mo., 7%, $4,950. 213-378-1026.

China, Noritake, Blue Rose pattern, over 60 pcs., $40. 213-375-7006.

Bedroom Set, 7-pc., blonde, box spring & mattress, $75. 213-294-2461.

Travel Trailer, 15½′ Scotsman, sleeps 5, $350. 213-371-7274.

Projector, regular 8mm, case, bltin splicer, $25. 213-371-1070.

U.S. Flag, 8′x5′ cotton, seldom used, $10. 213-675-6128.

Hi-Chair, playpen, $10. 213-376-4831.

Movie Equipment, 8mm camera, projector, editor/splicer, screen, $75. 213-679-6982.

Kitchen Table, 4 chairs, $10. 213-641-6362.

Skis, Hart, 190s, $50. 213-644-6940.

Ping Pong Table, all access., $15. 213-372-7018.

Bicycle, 3-spd., 1 yr. old, $65. 213-644-9292.

Tape Recorder, Telefunken, $125. 213-675-7673.

Dining Table, oval, 6 chairs, Salem maple, exts., $75. 213-375-9553.

Boat, 20′ catamaran, fully equipped, $750. 213-597-0550.

Engine, Falcon, 170 cu. in., 6-cyl., $35. 213-328-3306.

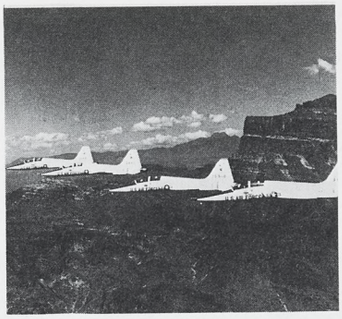
Melodica, w/case, $10. 213-675-6397.

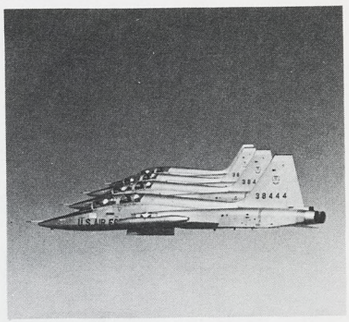
Lot, corner, residential, Lake Havasu, Ariz., $7,500. 714-526-2962.

Chord Organ, elec. Emenee audio 3-oct., bench, $25. 213-644-0506.

Motorcycle, 1967 90 Suzuki, dirt or street, $175. 714-524-9688.

Sofa Bed, vinyl, & water skis, $40. 213-324-8853.





OOPS! IN OUR October issue, page 3, on Northrop's participation with the Air Force these 25 years, in a mix up in printing we put an F-5B picture, right, over a T-38 caption. Since our readers who phoned in about the error said they intend to keep the page for historical value, we are printing the right picture for those who would like to cut it out and paste it on the page they are saving (and also to cover up our error).

Miscellaneous For Sale

Cover, green, fitted, for studio couch w/ matching round bolsters, $10. 213-645-7972.

Tires, 4 Delta, whls., hub caps, mounted, 800x16.5, 8-ply, 8-lug, $100. 213-325-7888.

Pup, German shepherd, male, 6 mos. old, $50. 213-325-0116.

Organ, Kimball Swinger w/rhythm, $650. 714-832-7014.

Motorcycle, 1970 Hodaka Super Steen, many extras, $350. 213-679-6902.

Motorcycle, 1972 Honda SL70, $300. 213-675-6206.

Dog, Maltese, reg., female, 11 mos. old, shots, $160. 213-534-1809.

Bicycle, 20″ girl's, $5. 714-523-5315.

Fencing, chain link, 140′ 11 ga. std. wire 48″ high, $25. 213-377-9723.

Bumper, front, Karmann-Ghia, $25. 213-329-2893.

Sloop, 25′ Coronada, custom mahogany int., 6 h.p. Evinrude, $5,250. Box 1102.

Sailboat, 29′ Triton sloop, inbd. eng., 3 sets of sails, fully equipped, sleeps 4, $7,900. 805-642-4142.

Drum Set, Ludwig Super Classic, cymbals, stands, $599. 213-291-6075.

Washer, Hot Point Silhouette S200, 1963, $35. 213-377-5853.

Bicycle, tandem, Schwinn 5-spd. de lux twin, $100. 213-324-9223.

Fencing, chain link, 30′, bars, clamps, 36″ h., $7. 213-328-0887.

Mobile Home, 20′x55′, 1969 Kit Fairview, 2-bdrm., 2 bath, forced a/h, Huntington Bch., $12,000. 714-847-7874.

Organ, Conn, electronic, Leslie spkr., 2 full keyboards, $200. 714-524-2128.

Tires, Firestone 145, pr., 13 Cavallino sport 200 radial, never mounted, $19 ea. Box 1103.

Mobile Home, Villawest 20x54, 2 yrs. old, adult park, pets accepted, 2-bdrm., 2 baths, $11,500. 213-320-5834.

Chair, moss green velvet, $90. 213-644-4656.

Motorcycle, 1970 Honda CL-450, 7,000 mi., $675. 213-326-0279.

Engine, Porsche, 1600 cc, complete, extra spare parts, $385. 213-821-9110.

Microwave Oven, Amana, delux model, $300. 213-675-7938.

Fire Extinguisher, Ansul, S-350 lb. dry chemical, 50 ft. of hose, used once, $500. 714-839-5218.

Fireplace, Swedish, complete, h/ware & screen, $125. 213-378-9660.

Wanted to Buy

Cornet, or trumpet for child. 213-833-2707.

Utility Trailer, box-type, metal or wood. 213-545-5995.

Baby Porta-Crib, in good condition. 213-530-3118.

Free (To Be Given Away)

Dog, miniature Greyhound, 3 yrs. old, male. 213-676-7007.

Cat, male, 8 mos. old, had shots. 213-370-9037.

Pup, cokapoo & German shepherd, 8 wks. old, black, male. 213-830-6956.

Child Care

Child Care offered, my home, toddlers only, Lawndale. 213-542-5434.

Found

Northrop Golfers call for your lost golf covers at Personnel Activities, ext. 2486.

Found

Glasses, 1 pr., men's, black rims, Dr. Palmer, optometrist, found in Northrop Daihatsui, call ext. 4684.

Personals

To my friends & fellow workers, a million thanks for the lovely retirement party & gifts. FRANK L. ROMERO.

Our sincere thanks to all of Artie's friends at Northrop. The flowers & donations to the Heart Fund were deeply appreciated. MRS. ARTIE VAUGHN & FAMILY.

Our sincere appreciation for the flowers & kind expressions of sympathy on the recent death of our son, Gordon. MR. & MRS. DONALD E. SMITH & FAMILY.

I wish to thank my many friends for the surprise retirement & going away party & gifts. I shall always remember all my co-workers & friends. JAKE SUPERATA.

My sincere appreciation for the lovely flowers & kind expressions of sympathy at the time of the death of my mother. A. G. MACLEOD.

I want to express my most sincere thanks & appreciation to all my friends & co-workers at Northrop for the wonderful retirement party & gifts. I will always remember our association. GENE MUSK.

To my dear Northrop friends, thank you for the flowers & expressions of sympathy on the passing away of my mother. ROY & JOAN HUNTER & FAMILY.

Ride Offered, 7:30 a.m.-4-12 p.m., Huntington Beach area, vicinity San Diego Fwy. & Beach Blvd. or Warner Ave., Aircraft exts. 4505, 4506.

For Sale or Trade

Chevrolet, 1965 Bel Air, $450 or trade for pickup. 213-325-2637.

Travel Trailer, 1968 15′ Field & Stream, propane range, elec. lights, $900 or consider trade for pickup camper. 213-433-5577.

NORTHROP NEWS

Vol. 30 **No. 11**

Published monthly by Northrop Corporation Employee Communications.

Managing Editor, Rosemary Hussey; Editors: Ivy Edmonds, Electro-Mechanical Division; James Lassiter, Aircraft and Electronics Divisions; Correspondents: Dale Albee, Architectural Systems; Peter Goodall, Precision Products Department.

Mailing address: Northrop News, 170/40, Northrop Corporation, 3901 W. Broadway, Hawthorne, Calif. 90250. Telephone: (213) 675-4611, ext. 4273.

NOTICE

Due to space limitations, rental advertising will no longer be accepted. Exceptions are bona fide transferees who wish to sell or sublet their homes or apartments or new employees who are seeking housing.

NEW RADIOGRAPHIC (x-ray) equipment, recently installed in the NEMD Process Engineering/Control Laboratories, is inspected by Ed Schwarze, right, and Mason Haigh. According to Dave Bliss, process engineer/control supervisor, this type of non-destructive testing equipment improves our examination capabilities tremendously and subsequently the quality of the delivered end product. For example, this equipment provides 100 per cent visual inspection of all layers within a multi-layered printed circuit board. Previous methods were limited to observation of the surface layers and metallurgical examination of the associated test patterns. Non-destructive examination of the internal layers was not possible. Time and cost factors have also been improved. Other applications of this equipment include examination of small components, encapsulated assemblies, and small castings.

GETTING READY for the upcoming NRC Christmas Party are a couple of regulars for this annual fun festival. Since Santa is busy right now, John Burke donned red suit and whiskers to stand in for the jolly old fellow in the picture. However, Santa promises Northrop children that he'll be there on Dec. 17.

CHRISTMAS PARTY COMING ON DEC. 17

The Annual NRC Children's Christmas Party will be held Sunday, Dec. 17, according to Roy Steinestel, Special Events chairman.

The party opens at noon at the NRC Clubhouse on Valencia and goes until 4 p.m. There will be Santa Claus, a gift for each child, games, pony rides, free refreshments and candy canes and funny animals.

Invitations will be mailed with payroll checks on Dec. 1 and should be returned as quickly as possible.

Forve Appointed General Counsel

Frank F. Forve has been appointed division general counsel for the Electro-Mechanical Division, George Gore, Corporate vice president and general counsel, announced.

Division Counsel

He was division counsel for the Aircraft Division from 1950 to 1964. He returns to Northrop after serving as counsel and secretary for The Marquardt Corporation and counsel for the Whittaker Corporation.

Mr. Forve holds a Doctor of Jurisprudence degree from Georgetown University Law School where he was an associate editor of the Georgetown Law Journal.

ZOOM LENS

(Continued from page 1)

ments are some of the largest of their type in the world.

Development of the lens is under direction of Bob Lane, manager, Advanced Electro-Optical Systems, with Paul H. Halderman as project engineer. Design was by Mr. Halderman, E. T. Luszcz, and George H. Matter. Fabrication and lens grinding are being done by William Hanna, John R. Bartos, M. E. Therssen and Tom Griffith.

Olson to Develop Emission Program for City of Chicago

Olson Laboratories, Inc. has received a $130,000 contract from the city of Chicago for professional engineering consultant services to develop and implement a vehicle emission inspection program for the city's 1.2 million vehicles.

While several states have legislated regulations or are formulating laws proposing mandatory vehicle inspection to control vehicle emissions, Chicago is the first city taking appropriate steps to enforce the requirements of a municipal code promulgated by the Chicago City Council on Nov. 29, 1971. The regulation sets standards for exhaust and smoke emission and provides penalties for drivers whose vehicles exceed the standards and requires that public testing be operative by June 1, 1973.

OLI's technical and managerial expertise demonstrated in performing similar studies for California, Colorado and the Federal Environmental Protection Agency contributed significantly in the city's decision to contract with OLI, according to G. F. Di Labio, who participated in the contract negotiations.

In the initial phase of the contract OLI engineers will plan, develop and direct a "pilot test" aimed at the evaluation of the most feasible plan whereby the city will be able to implement and enforce the municipal code. The analyses and evaluation will address: selection of inspection and maintenance procedures, number and location of inspection stations, inspection personnel skill levels and training requirements, instrumentation for inspection and repair functions, program implementation and operating costs, and vehicle owner costs.

George A. Fuller Co., Inc., a Northrop Corporation subsidiary with offices located in the city of Chicago, will assist OLI.

The program will be administered by Dr. Robert D. Gafford, OLI vice president for Research and Engineering. John Gunderson is program manager.

BERT BEARD, a big man who grows big flowers, shows off the giant sunflower he grew as a project with the NRC Horticulture Club.

Division Sponsors Junior Achievers

The Electro-Mechanical Division will again sponsor a Junior Achievement company, according to Bob Boostrom, division coordinator for Junior Achievement.

Junior Achievement is a nationwide program that teaches high school students the principles of the American free enterprise system.

Division advisors for the 1972-73 JA season are, below, Bob Lawther, alternate; Larry Forte, sales; Bob Boostrom, IR Junior Achievement coordinator; Greg Burns, finance; Del Mott, production; and Harry George, management.

NORTHROP NEWS

Aerospace Outlook—President Jones

The outcome of 10 key government programs with a potential of $16 billion over the next six years could mean success or failure in the future for Southern California's aerospace industry, according to Thomas V. Jones, Northrop president, appearing at the 1973 Los Angeles Chamber of Commerce Business Outlook Conference.

Speaking on "The Aerospace Outlook for 1973—And Beyond," Mr. Jones said, "In the defense and space fields, there are some 10 government programs which mean a great deal now—and will mean a great deal more over the next five or six years—to the economy of Southern California."

The B-1 bomber, Space Shuttle, Northrop's A-9A, Lightweight Fighter and F-5E International Fighter, Maverick and Phoenix missiles, S-3A and P-3 anti-submarine aircraft and Trident Submarine-launched missile are the top 10 on-going government space and defense programs in Southern California, according to Mr. Jones.

"If all of these programs go as planned, they represent about $16 billion over the next six years, of which about $2 billion would come in 1973. Because of the amount of this that would be spent in other states—for engines and other equipment, and for subcontract work — it is estimated that about 60 per cent of the total would remain in California, or about $10 billion over the next six years and about $1.2 billion in 1973," he said.

Mr. Jones added that the termination of the war in Vietnam will not materially affect the Southern California aerospace industry since it has not been significantly involved in supplying equipment for that conflict.

He noted that the industry's greatest opportunity in the future lies in the area of exports. "Our advanced technology is competitive with suppliers throughout the world, and given access to these markets, we can compete. The important thing here to remember is that we recognize that we are dealing with sovereign nations, many with industries of their own, and that if we are to contribute to their defense it must be on the basis of cooperation rather than confrontation," he pointed out.

Commenting on the aerospace employment picture, the chief executive said, "There is a growing tendency on the part of other sections of the country to protest the share of defense business that comes to California and to demand a larger share for themselves," he declared. "This percentage of business is here because it was the Pacific Coast, and California in particular, that supplied the scientific and technical know-how that built up our national security and the space programs when they were needed, and it was our people who took the brunt of the lay-offs when the cutbacks began."

Mr. Jones emphasized that "the case for the geographic distribution of defense work is not valid."

On the civil front, he predicted that there will be increasing opportunities for the solution of the problems of the economy and the society, and that aerospace will make an increasing contribution in that field.

Board of Directors Promotes Two Northrop Executives

F. W. "Bob" Lloyd has been elected to the board of directors of Northrop Corporation, Thomas V. Jones, president and chairman, announced.

Mr. Lloyd is senior vice president-Operations for Northrop. He joined the company in November 1941 as an assembler, and progressed steadily through the positions of general foreman, assistant superintendent of Production Control, superintendent of Manufacturing Control, assistant factory manager, general superintendent, director of Manufacturing Engineering, and vice president-Manufacturing.

Prior to being named to his present position, Mr. Lloyd served for five years as vice president and general manager of the Aircraft Division, the company's largest operating component. His development and implementation of advanced technology manufacturing methods enabled Northrop to become one of the lowest cost-per-pound manufacturers in the aerospace industry.

In other action by the board of directors, Mr. Jones announced the election of David H. Olson as secretary of the corporation. Mr. Olson joined Northrop in 1967 as assistant secretary.

Mr. Olson received his A.B. degree from the University of California at Los Angeles and his J.D. degree from the University of California at Berkeley. He served in the U.S. Air Force from 1959 to 1961, attaining the rank of captain. He is a member of the State Bar of California, American Bar Association, Los Angeles Bar Association, Lawyers Club of Los Angeles and the American Board of Trial Advocates.

Mr. Olson's election will provide George Gore, secretary of the corporation since 1945, "with more time to devote to his duties as corporate vice president and general counsel," according to Mr. Jones.

Mr. Lloyd

Mr. Olson

SLATE SET FOR NORAID OFFICERS

Dan O'Halloran has been named chairman of the board of directors and Doug Leavenworth, president of NORAID, Northrop's in-house charity program, at a meeting last month.

Mr. O'Halloran, Paul Jacobs, C. W. Benson, M. K. Lowe, Willard Lindstrand, Frank Mathes and Sal Xifo, represent the Aircraft Division; Mr. Leavenworth, Electro-Mechanical; Lloyd Jones, Electronics; and Frank Smith, the Corporate office, on the board.

Mr. Xifo serves as vice president; Ernie Boren, treasurer; Marie Tully as secretary and administrator; and Rudy Rivero, accountant, for the coming year.

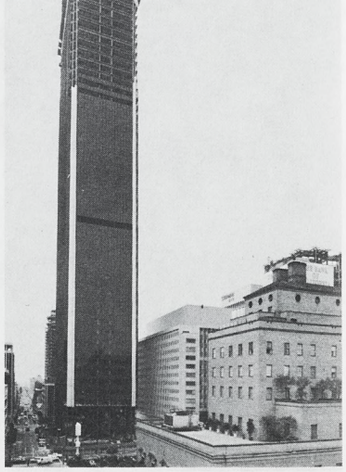
NAS Installs Curtainwalls in Tallest Building in Downtown Los Angeles

Northrop Architectural Systems, City of Industry, is busy putting together portions of the tallest building west of Chicago. The Custom Products Division of NAS, under a $3 million contract to United California Bank, maintains a 65-man crew installing the curtainwall portion of the new UCB corporate building.

Located in downtown Los Angeles, south of Sixth Street, north of Wilshire, west of Hope and east of the Mobil Oil Company, the UCB building will rise 62 floors above ground, 858 feet high. It is 10 stories higher than any other building in the Los Angeles area; the second tallest structure being the Richfield Towers at 52 floors. The structure itself will be 180 feet wide, 119 feet deep, and will require 100 miles of aluminum extrusions and approximately 12,200 lites of glass or about 1¼ million pounds. The titanic wall area if laid flat would cover more than 10½ football fields.

Sections of the curtainwall were tested for air and water infiltration last January at the University of Miami. The building, which tapers 5 feet inward from top to bottom all around, will also support 18 miles of vertical mullions, and 93,000 square feet of aluminum clad sheets on its corners.

NAS, maintaining services and products all over the free world, plans to complete the curtainwall portion by summer 1973.



UNITED CALIFORNIA BANK CORPORATE BUILDING

P-600 NOW YF-17

Northrop's Lightweight Fighter (LWF) prototype aircraft, originally called the P-600, is now the YF-17 as designated by the U.S. Air Force. In April of this year, Northrop received a contract to build two prototypes and the aircraft are expected to fly in early 1974.

Young Lady Honored As Outstanding English Student

Carol Ann Beuchat, daughter of Chuck Beuchat, Training specialist with the Aircraft Division, is an exceptional young lady in that she has been cited as one of the outstanding high school students of English in the country.

The National Council of Teachers has named the 17-year-old Gardena High School student a 1972 finalist in its annual Achievement Award competition.

Miss Beuchat

In the competition, each student submitted samples of their best writing, including an autobiographical sketch, and wrote a one-hour impromptu essay. The writings were evaluated by college and high school English teachers directed by state coordinators.

Approximately 7,200 juniors participated in the contest, and 870 finalists were chosen representing 50 states, the District of Columbia, and American preparatory schools abroad.

Carol is a candidate for a college scholarship in 1973, and her name has been sent to admissions officers and English department chairmen at junior colleges, colleges and universities.

Discounts Offered By Sports Club

Northrop employees now can enjoy more than 50 of Southern California's sports and entertainment events at half the regular price.

Personnel Activities has made arrangements for personnel to become members of the Two For One Sports Club, Inc. for $5 which is a savings of $1 on the regular $6 price. This family package is valued at over $250 and will enable you to see the Los Angeles Lakers, Los Angeles Kings, Forum Boxing, Western Harness Racing, Riverside Auto Racing, Glen Campbell Los Angeles Golf Open, Ringling Brothers Circus and many more events.

For further information contact Aircraft Division Personnel Activities, ext. 2486.

COOKBOOKS

This is your last chance to buy the Northrop cookbooks which went on sale early this month.

The books are $2.50 and are available at any Personnel Activities office.

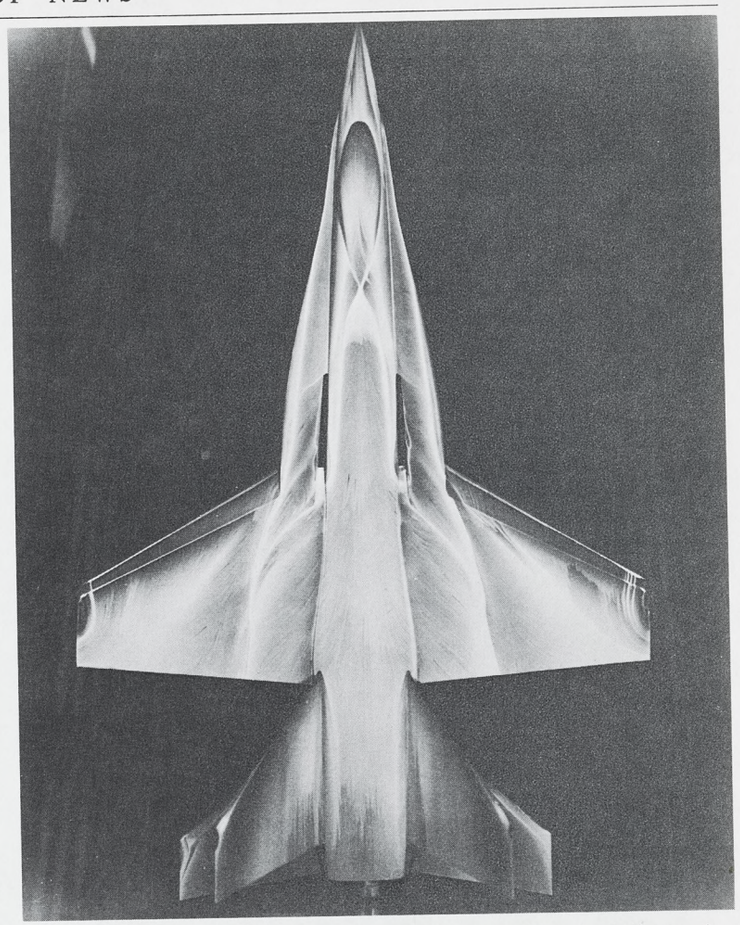
The cookbooks contain recipes submitted by employees, and proceeds from the sale support several Northrop charities.

DR. HICKS ELECTED

Dr. D. A. Hicks, vice president, Research and Technology, has been elected vice chairman of the Aerospace Technical Council of the Aerospace Industries Association.

The Aerospace Technical Council is the industry's top level technical advisory body through which broad technical and management problems affecting both government and industry are reviewed and solutions sought.

BOB PATCHIN, Aircraft Division, left, explains Northrop's work on the Boeing 747, in background, to Mayor and Mrs. Edward McNamara of Livonia, Mich., during the couple's recent visit to California. Guiding Mayor and Mrs. McNamara on their tour of Northrop facilities is Don Foulds, right, vice president, Olson Laboratories. Olson, a Northrop subsidiary, will shortly begin operations in a new vehicle emission test center in Livonia.



ULTRAVIOLET light and a mixture of oil combine to indicate air flow around a wind tunnel model of Northrop's P-530 Cobra air superiority fighter. The Cobra is being developed as a proprietary Northrop effort for use by free world nations.

IN LEISURE TIME

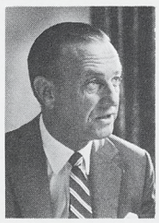
Carlson in AFCEA, Scouts

Richard A. Carlson, Facilities and Communications specialist for Northrop Data Processing, has been elected secretary of the Armed Forces Communications and Electronics Association. Mr. Carlson will maintain all records and correspondence for the AFCEA which specializes in communications with the Armed Services.

During his leisure time, scouting is his primary activity; in fact he's been a part of scouting for 39 years. At present he is a member of the Executive Committee for the Orange County Boy Scouts of America.

Mr. Carlson will be one of the camp directors at the National Scout Jamboree West in 1973, at Farragut State Park, Idaho. Forty-two thousand scouts will be on hand for the event.

NEWTON 'BUD' LINDSEY, Quality Assurance technician, Ventura Division, explains destructive testing technique to members of the Pierce College evening class in Quality Engineering. The class is taught by Anthony F. Fortuna, Quality Assurance project leader for Marine Systems at Ventura Division. Mr. Fortuna has been instructing for 25 years, the last 15 on the college level.



Season's Greetings

To the Men and Women of Northrop:

The holiday season is traditionally a time for retrospection and resolution, and we at Northrop have much to be thankful for as well as much to look forward to.

We have received worldwide recognition for our creative technology and production competence in fields ranging from aerospace to architecture, from communications to ecology, and from clinical pathology to transportation.

Prospects for peace in the world are greater than ever, and with those prospects come ever increasing opportunities for us to contribute to the solutions of the problems of our economy and our society.

With these accomplishments and goals in mind, I would like to thank each and every one of you for your part in maintaining our long-established Northrop traditions, and to express my optimism for our continued and ever-improving success in the future.

Mrs. Jones and I wish each of you and your loved ones the most joyful holiday season, and the peace, joy and good fortune you so richly deserve.

Thomas V. Jones
President

To the Men and Women of Electro-Mechanical Division:

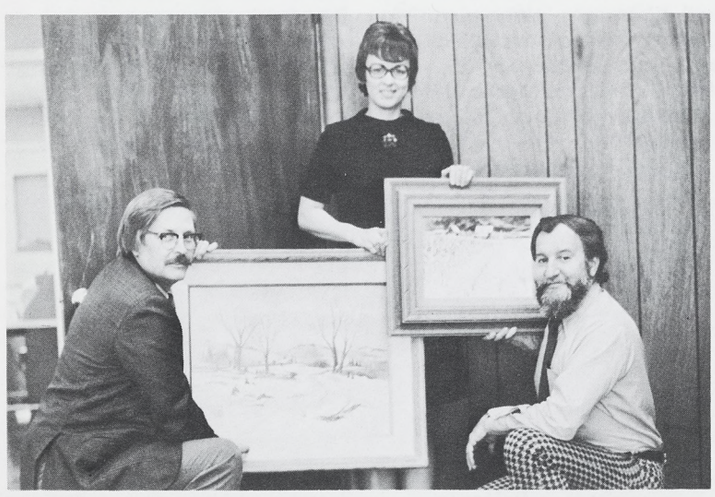
After sharing the aerospace industry's lean times for the past two years, our division is closing 1972 with an increase in our business activity. It also appears now that we can expect a modest growth in our work in the coming year.

This heartening situation is directly due to your loyalty, dedication and outstanding efforts, which have remained strong in good times and bad. The past year has again verified my conviction that our greatest strength is our people and their team spirit.

You have my sincerest thanks for the way you have responded to the challenges we have faced and overcome. As you leave for your traditional yearend vacation, my best wishes go with you and your families.

Happy holidays to all of you.

Frank W. Lynch
Vice President
and General Manager



DONNA CLARK receives paintings from Harold Leff and Bob Peck which the two Northrop artists are donating to the Accounting and Finance Department's Annual Needy Family Program. Both Harold and Bob were recent winners in the Anaheim Art Association's Fall Festival. Harold placed first and Bob second in the traditional category, and Bob won the Judges' Award for Best of Show.

FOR $29 MILLION

New HAWK Contract

The Electro-Mechanical Division has received a $29 million contract to build HAWK anti-aircraft missile launchers and loaders for the U.S. Army Missile Command, Redstone Arsenal, Huntsville, Ala., according to an announcement by Frank W. Lynch, vice president and general manager.

The work will be done at Anaheim, with acquisition of material beginning immediately, and fabrication and assembly extending until October 1975.

"The new contract is the result of our past record in cost, scheduling, performance and our reputation in HAWK systems production," Mr. Lynch said. "Our contracting team, Bob Philbrick, Production Marketing; George Neidhardt backed by John Borland in Contract Administration; and Chick Hunt supported by Aldo Miele from Cost Estimating and Pricing; did an outstanding job in obtaining this new contract for the division. Technical aspects of the program were supported by Chuck Barnard's Tactical Systems Engineering."

Northrop has been associated with the HAWK since 1954 when the division designed and built launchers, loaders and missile airframes as a subcontractor for Raytheon Company, the HAWK Systems program manager.

The new contract is for an improved version updated to be consistent with the current generation of anti-aircraft defense requirements.

A SMILING HOWARD BENTON receives his 25-year service award from Frank W. Lynch, vice president and general manager. Mr. Benton, whose present job is assembling actuators, began work with Northrop at the Aircraft Division. His first job was working on a Boeing subcontract to build engine nacelles for the B-29 Superfortress.

Achievers Select Officers

Members of the Electro-Mechanical Division-advised Junior Achievement company have elected officers, selected a company name, and chose two products to manufacture and sell, according to Harry George, management advisor to the group.

The 17 high school participants elected Michael Michaud, president; Mark Brown, vice president, Manufacturing; Bruce Biel, vice president, Sales; Bernice Dorko, vice president, Personnel; Joan Beckleheimer, treasurer; April Lee, secretary; Tricia Nihell, sales manager; Gary Rapport, production manager; Patricia Mueller, safety director.

The group selected Good Earth Company for their corporate name, and voted to manufacture and sell decoupage plaques and a repeat of the popular Fire Starters of last year's JA company.

Northrop advisors, in addition to Harry George, management, are Del Mott, production, Greg Burns, accounting and finance, and Larry Forte, sales. Bob Lawther is alternate. Bob Boostrom is the Industrial Relations Junior Achievement coordinator.

DAVE KESSLER IS WORKSHOP SPEAKER

The Electro-Mechanical Division's David Kessler was featured speaker at the 10th Annual Government-Industry Data Exchange Program Workshop held recently in San Diego.

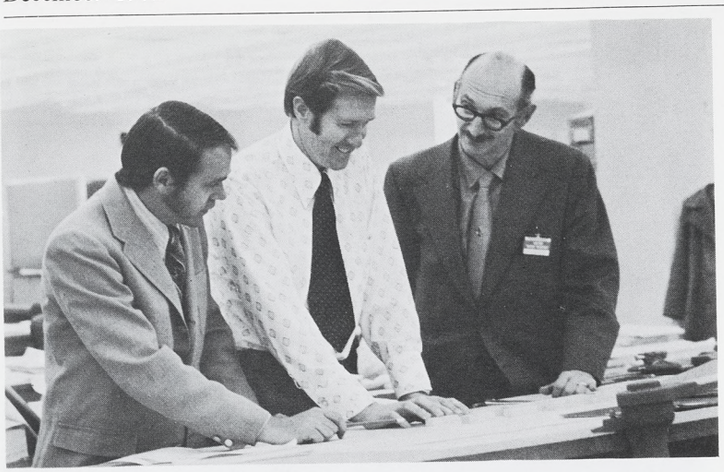
More than 300 government agencies and industrial firms were represented at the meetings.

GIDEP has received credit for saving more than $36 million in real savings and untold millions in intangible benefits since the program's inception in 1960.

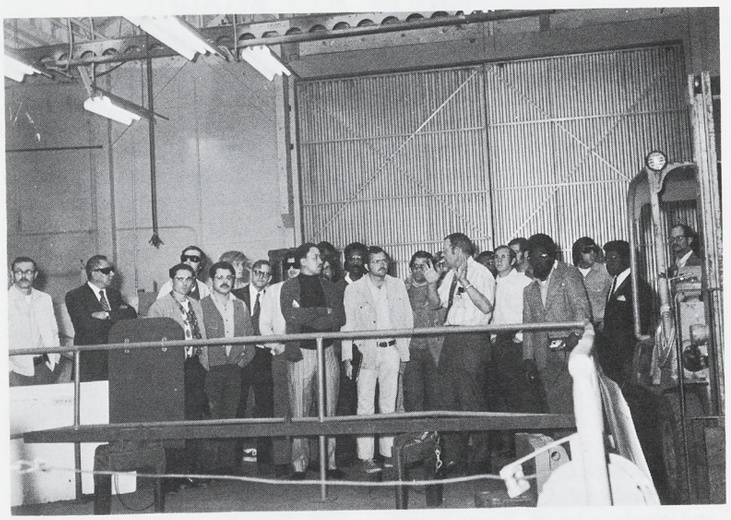
BIG TIME COMING

NRC is planning a New Year's Eve Party at the clubhouse on Dec. 31.

Sal DeGrasso's Satin Aires will provide music for dancing. There will be a buffet and free refreshments. Festivities run from 9 p.m. to 1 a.m. Price will be $17.50 per couple.



DISCUSSING IMPLEMENTATION of the new Olson contract for engineering consultant services to develop and implement a vehicle emission inspection program for the city of Chicago are right, Joseph Seliber, coordinating engineer for Chicago's Department of Public Works; Milt Webb, center, Olson project engineer; and John Gunderson, Olson's program manager. Chicago is the first city in the nation to develop its own emission control program, which calls for vehicle inspection of the city's 1.1 million vehicles.



AL VAN DER MOST, part-time faculty member at Cal State University, Los Angeles and chairman, Corporate Occupational Safety and Health Subcommittee, is shown with his Industrial Safety class during a recent visit to the Aircraft Division. The tour of Sheet Metal Fabrication, Paint and Process, Machine Shop and F-5B and F-5E assembly areas was conducted by Ray Shepherd and Tom Stinson and coordinated by Ben Knell, senior safety engineer, all of Aircraft Division. "The passage of the Occupational Safety & Health Act (OSHA) has made a tremendous impact on educational institutions as well as industry," Mr. Van Der Most said, "Northrop's facilities show evidence of the many years of progressive action in maintaining a safe and healthful working environment for all their people."

Life Sciences Lab Seeks Ways to Detect Diseases

A system of analytical procedures utilizing the latest sophisticated laboratory instruments has been developed for the Manned Skylab program by researchers in NASA's Manned Spacecraft Center's Cellular Analytical Laboratory.

The Cellular Analytical Laboratory of the Life Sciences Directorate is the prime in-house NASA facility active in the development of early disease detection and identification through structural and chemical analysis of the cellular elements of man's blood.

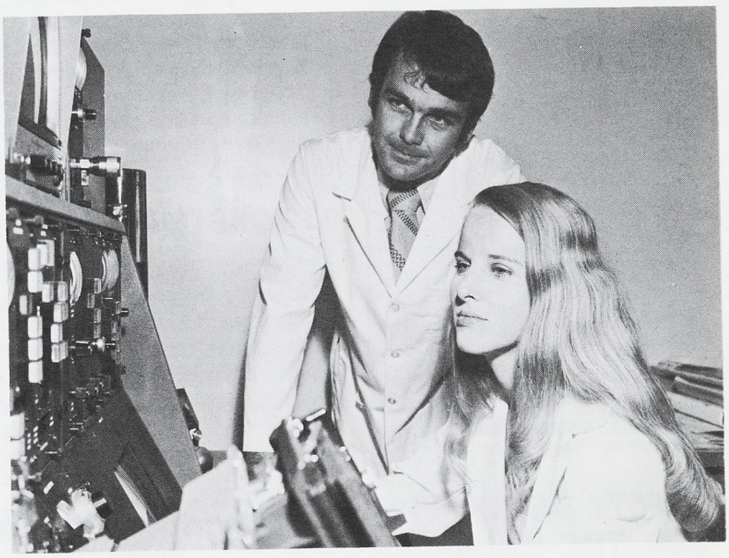
"Although the research talent and instrumentation utilized are not in themselves new, their assembly in one facility and their coordination in a single research project distinguishes this laboratory from any in the world," NASA said.

"The medical research team, composed of government, in-house support contractor (Northrop Services Inc.) and university research scientists and technicians have, over the past several years, developed many of these procedures in blood cellular analysis, first for use in the manned Apollo flights and now considerably improved for Skylab."

MENGERT TO SING HANDEL'S 'MESSIAH'

Carl Mengert will again be tenor soloist in a presentation of Handel's "Messiah" this year at the First Presbyterian Church, 191 North Orange, in Orange.

Mr. Mengert is a former professional concert singer who has appeared under the direction of Roger Wagner, Alfred Wallenstein, Arturo Toscanini, Sir Thomas Beecham and other noted conductors.



NORTHROP SERVICES INC.'s Research Analyst Linda Burns works with NASA's Dr. Stephen Kimzey, chief of the Cellular Analytical Lab, in seeking a quick and accurate way to predict infectious diseases. NASA Photo

IT'S A HAPPY anniversary for eight division personnel who have just received their 20-year service awards from Don McInnis, left. They are Mae Taylor, Richard Jolley, Ed Robertson, Victor Steininger, Walter Hoppe, Adie Weishaar, Ernest Obermayr, and Joseph Devor. Absent from the picture are Ruthe Schlosser and Calvin Friess.

NRC EXECUTIVE COMMITTEE NAMED

Vito de Paul will head the 1973 NRC Executive Committee, succeeding Ed Mosher who guided the committee for the past season.

In addition to Mr. De Paul, others elected were Harold Leff, vice president; Donna Clark, secretary; Charles Fox, treasurer; and Paul Kahler, sergeant-at-arms. Ed Mosher will continue to serve as past president.

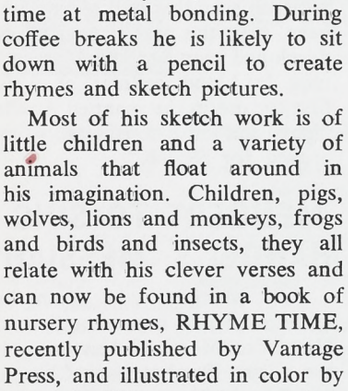
NRC currently sponsors 22 clubs at Anaheim.

Ehret Finds Sketching Nursery Rhymes Relaxing

Wendell Ehret, Aircraft Division, has worked for Northrop for over 23 years, most of this time at metal bonding. During coffee breaks he is likely to sit down with a pencil to create rhymes and sketch pictures.

Most of his sketch work is of little children and a variety of animals that float around in his imagination. Children, pigs, wolves, lions and monkeys, frogs and birds and insects, they all relate with his clever verses and can now be found in a book of nursery rhymes, RHYME TIME, recently published by Vantage Press, and illustrated in color by Wendell. "Most of the creations in the book don't really have a moral or convey any sort of a lesson, as they are strictly fun, pure and enjoyable," he said.

Wendell never went to an art school, but learned to draw through a correspondence course. He worked for a while in a movie cartoon studio prior to World War II and since then many of his drawings have been published.



WENDELL EHRET finds relaxation in creating rhymes and sketching pictures during coffee breaks.

CHRISTMAS EDITION COVER

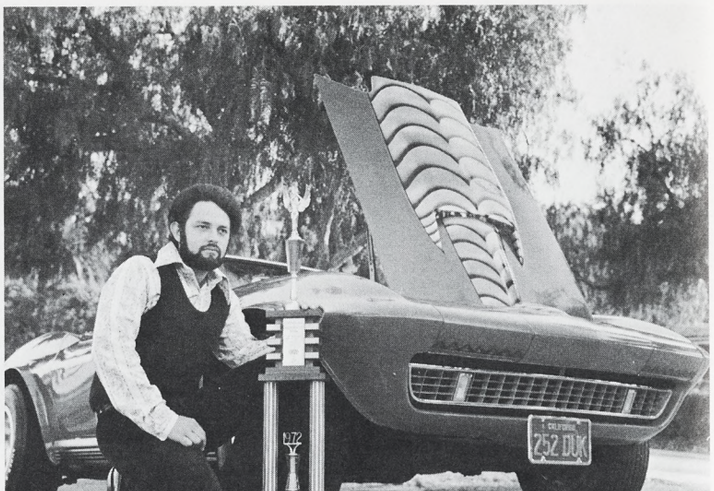
The 1972 Christmas edition cover of the Northrop News shows, through the window, the Boy Scout Troop 262 Christmas tree lot with Raymond and Glen Van Heel, and Loretta and Danny Williams.

Troop 262's Christmas tree sale is sponsored by the Northrop Recreation Club, Aircraft Division.

Artwork was done by Thad Roark, and the photography by Dave Saldana.

TOASTMASTERS

Northrop Toastmasters Club 212 will celebrate its 20th anniversary Jan. 13, 1973. All former Toastmasters are urged to contact Hank Greenberger, Electronics Division, ext. 647 or Charlie Ferraro, Aircraft Division, ext. 5107.



NUMBER ONE. Mike Evans, Aircraft Division, with his car and first place trophy he won at the Long Beach Custom Car and Motorcycle Show in October. Photo by Thurman Sharp.

IN SPORTS CAR SHOW

Evans Takes First Place

Mike Evans, Aircraft Division, captured a first place trophy for best all-around American sports car at the Long Beach Custom Car and Motorcycle Show held Sept. 29 through Oct. 1. Mike personally did the customizing and painting on his 1964 Corvette Stingray in preparation for the competition.

He used acrylic lacquer paint with a pearl white base, airbrushed orange fans, top coated with candy apple red and blue murano. The hood scoop is tiger-striped with candy gold, yellow, orange, and candy red gold. Three months of preparation and labor went into his car before the paint was even applied. He then sprayed 3½ gallons of primer on the car, hand-sanded the entire body, and used five gallons of paint to come up with his prize winning creation.

Mike said, "there's a lot to know about the different types of paint and their application, and only through hard work and experience can someone put together something really nice." He has a variety of spray guns, but his favorite is the airbrush which he used to do most of the detail and ornamental work.

One of Mike's custom paint jobs was on a motorcycle that broke the world speed record in its class at the Bonneville Salt Flats during August 1972.

SAFETY REMINDERS FOR THE HOLIDAY

One of the most eagerly awaited times of the year — Northrop's traditional long yearend holiday —is just around the corner.

With these happy times coming up, there are always certain precautions that should be observed to make this a safe and enjoyable period of time.

All employees are reminded to make a check of their work area prior to departing for the holiday. Christmas decorations should be removed from the premises prior to the close of shift on Dec. 22. Typewriters, coffee pots, adding machines and other electrical appliances and machinery should be unplugged. Files, cabinets and desks should be locked.

Olympiad a Memorable Occasion For Roger Vogel

Roger Vogel will always remember the past summer as the most memorable of his life. At 19 he attended the 20th Olympiad at Munich as the official photographer for the famous Puma Shoe Company of West Germany.

Roger is the son of Electronics Division's Al Vogel, who is the chief of Diagnostic and Safety Systems.

Taking a page from his father's book on resourcefulness, Roger travelled to Eugene, Ore., last spring to attend the U. S. Olympic trials. At Eugene he convinced Armin Dassler, president of Puma Shoe, that Roger Vogel was the photographer for Puma. As a result, Puma paid Roger to attend the Olympics and take photos of athletes wearing Puma shoes.

Some of his outstanding photos showed Dwight Stones, U. S. high jump bronze medal winner, Randy Williams, U. S. long jump gold medal champion, and Bob Seagren, U. S. pole vault silver medal winner, all wearing Puma shoes. Another exciting shot showed four Puma-clad U. S. runners burning up the track.

But the most exciting photo of all for Roger was the one he took of John Akii-Bua, of Uganda, setting a new world record for the 400 meter intermediate hurdles. Roger shot that photo from the twenty-fifth row of the stadium, using a 300-millimeter lens on his Nikon F-2 motor driven camera, and the Puma "curl" on Akii-Bua's shoes came through bright and sharp.

When he isn't taking pictures or preparing for the 1976 Olympics, Roger attends California State University at Northridge, where he is a sophomore.

ROGER Vogel with father, Al Vogel.

Classified

A free service for Northrop personnel only. The right to edit or omit ads is reserved. Ads limited to one per family. Deadline is noon the second Wednesday of each month.

Automobiles For Sale

Dodge, 1970 Challenger, AM-FM stereo, p/s, p/b, $2,000. 213-675-7835.

Ford, 1964 Fairlane 500, auto., V-8, r/h, 70,000 mi., $250. 213-835-2328.

Hornet, 1971, 9,000 mi., 232 c.i.d., 6-cyl., 3-spd., radio, $1,750. 805-482-6945.

Chevrolet, 1965 Malibu, p/s, p/b, a/c, r/h, $475. 213-674-1367.

Dodge, 1968 Polara, a/c, p/s, p/b, auto. trans., 74,000 mi., bids close Dec. 21, min. bid $800. Credit Union, ext. 1117.

Chevrolet, 1967 Supersport 396, $1,300. 714-839-6029.

Renault, 1959, $75. 213-323-7171.

Chevrolet, 1964 Impala, 4-dr. h/top, a/c, auto., p/s, p/b, $795. 213-644-6658.

Falcon, 1965, 2-dr. stick, new clutch, trans. & brakes, $300. 213-454-1963.

Camaro S.S. 350, 1969, 4-spd., a/c, $2,200. 213-379-8248.

VW Camper, 1968, w/pop-top, a/c, AM-FM radio stereo, many extras, $2,895. 213-375-2091, 213-375-9397.

Pickup, 1963 GMC, ¾-ton, 8′ Aero Flight camper, full cabover, $2,000. 213-370-6896.

Oldsmobile 88, 1962, $175. 213-372-6916.

Midget MG, 1968, $800. 213-672-8490.

Pickup, 1971 Chev. ½-ton, 8′ wood bed, V-8, 10,000 mi., $2,600. 714-551-3844.

Chevelle, 1967 Malibu, 2-dr. h/top, 283 eng., auto. trans., p/s, $595. 213-248-1397.

Opel G.T., 1970, 4-spd., $1,800. 213-379-8796.

Dodge, 1967 Coronet 500, 2-dr. h/top, auto. trans., p/s, a/c, r/h, 383 cu. in. V-8 eng., $1,050. 805-643-6955.

Station Wagon, 1969 Pontiac, air, power, 3-seat, many extras, $2,400. 213-375-8536.

Truck, 1965 ¾-ton Chev., 283 V-8, hvy. duty equipped, 2 extra gas tanks, $995. 213-324-7637.

Station Wagon, 1964 Chevelle, 3-spd. manual trans., 283 eng., $150. 213-372-5508.

Pickup, 1967 ½-ton Chev., V-8, big tires, w/Weekender camper, sleeps 6, $2,600. 714-524-9688.

Porsche, 1964, reblt. trans., eng., $2,800. 213-322-7376.

Mustang, 1969 Mach I, 428 cu. in., C-6 auto., $1,400. 213-862-4406.

T-Bird, 1960, reblt. eng., 4 new recaps, $350. 213-375-4786.

Mustang, 1967, V-8, auto. trans., AM-FM, 60,000 mi., $490. 213-534-2487.

Chevrolet, 1963 Impala, 4-dr., auto., p/s, p/b, $300. 213-675-7915.

Chrysler, 1968 300, 2-dr., auto. trans., p/s, p/b, a/c, $1,750. 213-676-9953.

Cadillac, 1960 Cpe. de Ville, full power, w/ removable air cond. unit, use in other autos, $235. 213-676-1580.

Chevrolet, 1964 Malibu SS, Hurst, hi-perf. 327, new reblt., $800. 213-324-5719.

Olds F-85, 1966, auto., a/c, stereo, extras, $500. 714-644-1195.

Ford, 1971 LTD Brougham, p/s, p/b, AM-FM stereo radio, a/c, $3,000. 213-926-7624.

Mercury Comet, 1963, 6-cyl., 4-dr., r/h, 3-spd. stick, $300. 213-329-3900.

Pickup, 1969 Chevrolet, ½-ton, custom cab, fact. air, p/s, 396 eng., Gem top, $2,375. 213-671-6345.

Continental, 1964 4-dr. sedan, all leather int., fully equipped, $650. 213-882-0761.

Ford, 1965 Country Squire, 6-pass. station wagon, r/h, p/s, p/b, roof rack, $695. 213-375-5838.

Chevrolet, 1965 Impala, 396, 4-dr., p/s, p/b, a/c, $450. 714-522-2740.

Pontiac, 1968 Firebird, full power, a/c, AM-FM radio, $1,000. 213-360-1377.

Miscellaneous For Sale

Ventilator Fan, 243 s.p. aerofan, wall-type, in orig. carton, $20. 213-379-4517.

Wheels, 4, Austin Healey, 60 spokes, $20 ea. 805-495-3163.

Mobile Home, 12x60, in 5-Star Park, carport, 8′x36′ enc. patio, 2-bdrm. & den, 1½ baths, $5,400. 213-532-1344.

Organ Discs, Optigan, 8, $20. 213-327-4585.

Miscellaneous For Sale

Chord Organ, Magnus elec., $20. 213-675-7965.

Guitar, $25. 213-377-6648.

Cemetery Lots, 2, in Rose Hills Memorial Pk., Whittier, $500. 213-377-6460.

Bicycle, Schwinn Apple Crate, $65. 213-376-3569.

Adding Machine, Royal, Office Master elec., 10-key, never used, $75. 213-278-7550.

TV, 24″ color Magnavox, console-type, $210. 213-939-8053.

Target Rifle, Remington Rangemaster Mod. 37, .22 cal., Redfield scope, case, access., $130. 213-631-6480.

Typewriter, Underwood std., $40. 213-676-4464.

Cuckoo Clock, musical, German import in orig. carton, $50. 213-671-0756.

Utility Trailer, suitable for 3 motorcycles, $120. 213-830-5225.

Jacuzzi, for bathtub, Everest & Jennings, $175. 213-375-2127.

Bar, custom, 3 yrs. old, 4 padded stools, formica maple, 2 shelves, $200. 213-542-7197.

Dog, basset hound, AKC reg., 2 yr. old male, $25. 213-325-5859.

Utility Trailer, 14′ long, 1947 mod., $75. 213-679-4144.

Engine, 348, complete, incl. tri-power set up, $100. 213-644-5926.

Golf Clubs, 1972 Titlist, 1, 3, 4 & 5 woods, 2-9 irons, pitching wedge, $325. 714-879-5356.

TV, walnut cabinet, remote control, b/w, 20″, $75. 213-324-4475.

Washer & dryer, $75 or sell sep. 213-676-3050.

Engine, 1966 Corvair Spyder, 19,000 mi., all access., $275. 213-378-4991.

Chord Organ, elec. Magnus, table mod., $10. 213-675-6397.

Surfboard, Greg Noll, 6′11″, $60. 213-371-3769.

AM-FM-MFX, Emerson, w/2 8 ohm spkrs. & Soundesign 8-track, w/3 unopened tapes, $100. 213-374-7055.

Receiver, 75A-2 Collins, $100. 714-835-1124.

Guitar, Gibson, EB-O bass, case, $190. 213-824-2352.

Motorcycle, 1970 Kawasaki 250 c.c., street legal, many extras, $425. 213-645-4697.

Surfboard, 6′8″, roundtail, $50. 213-823-1788.

Transmission, auto., fits Falcon & Comet, $35. 213-328-3306.

Radio, Pace 2-way, 23-channel, almost new, $80. 213-676-8109.

Sweater, black fur, $30. 213-375-5237.

Shoe Rink Roller Skates, ladies, white, size 8, $6.50. 213-545-1631.

Motorcycle, 1971 Norton 750 cc, less than 3,000 mi., $1,100. 213-376-9047.

Dressers, 2 white provincial, $75. 213-326-3136.

Weightlifting Set, Paramount, press bench, bar bell, 4 dumb bells, assorted wts., $50. 213-431-9968.

Motorcycle, 1964 Triumph 500 cc chopper, $600. 213-860-4221.

Crib, white, w/mattress, $25. 213-926-7474.

Movie Camera, Kodak elec. 8, battery powrd., auto. exp., $49. 714-892-5801.

Bicycle, girl's Schwinn Sting Ray, coaster brake, $20. 213-376-2190.

Oven, Roper, dble., self-cleaning, $250. 213-889-0191.

Guitar, elec. Fender Mustang, case, $95. 213-833-5755.

Baby Items, 5 pieces, $25. 213-780-7476.

Dressing Table, baby's, $17. 213-675-6020.

Motorcycle, 1970 Yamaha, 250 twin, 3,600 mi., street mod., $350. 213-644-3874.

Console, Philco Estereo, AM-FM, record player, 2 yrs. old, $100. 213-547-1328.

Movie Camera, Bell & Howell, reg. 8, projector, screen & editor, $75 or sell sep. 213-679-6982.

Rocker, swivel, green velvet, $90. 213-644-4656.

Tape Recorder, Sony, video, $400. 213-329-1664.

Cocktail Ring, rubies and turquoise, 14K gold, custom designed, $100. 213-545-2577.

Movie Projector, 8mm Revere, $20. 714-523-5315.

Stroller, other baby items, $.50-$10. 213-329-6091.

Saxophone, Noblet tenor, $100. 213-423-1363. 213-675-4239.

Miscellaneous For Sale

Bicycle, English 10-spd., $60. 213-638-4954.

Desk, metal, youth's, w/typewriter table, $10. 213-675-4239.

Golf Clubs, 3 woods, 9 irons, $55. 213-372-1778.

Living Room Set, 3-pc., naugahyde, $30. 213-370-5031.

Sailboat, 1970 Venture 17, fully equipped, trailer & outbd., $1,850. 213-389-2079.

Charbroiler, Lazyman, portable stand, $30. 213-644-6384.

Motorcycle, Honda 70, 4-spd., Moto-Cross bars, $240. 714-832-9054.

Surfboard, 6′2″, 1972 mod., $70. 714-892-7174.

Dehumidifier, Westinghouse, $65. 213-545-7149.

Boat, 12′ fiberglass outbd., 20 h.p. elec. Chrysler, less than 50 hrs., trlr., $1,195. 213-927-6140.

Desks, 2 child's chair, & hi-chair, $14.50. 213-376-4831.

Golf Irons, 1970, 1st flite 2-W, D2, med. alum. shafts, $50. 213-374-1889.

Sailboat, 1969 14′ Banshee, new sail, $450. 213-429-7879.

Boston Whaler, 55, 17′, 4-cycle eng. Bearcat, trailer American, $2,200. 213-370-3886.

Camper Trailer, 1970, Nimrod deluxe, fully equipped, sleeps 8, $1,700. 213-374-6445.

Piano, upright, std. brand, modern walnut, $165. 213-696-7529.

Sofa, convt. dble. bed, solid-steel frame, $50. 213-641-8355.

Table, white wrought iron, round, glass top, 42″ dia., 4 chairs, $69. 213-675-2387.

Motorcycle, 1971 Honda, CB350, 7,000 mi., $450. 213-674-4890.

End Tables, 2 matching French provincial, $20 ea. 213-534-2951.

Motorcycle, Honda 450 street, Fairing, 16″ rear whl., $875. 213-370-2462.

Turntable, Pioneer Pla35, & Empire 999 SE/X cartridge, $85. 213-675-6128.

Motorcycle, 1972 Steens X100, Hodaka engine, $275. 213-834-9205.

Dune Buggy Parts, to construct a Renault pwrd. dune buggy, incl. eng., $70. 213-821-9110.

Dressing Table, antique w/triple mirror, 2 dwrs., mahogany finish, matching small cane seated chair, many other access., $115. 213-474-5726.

Bar, 2 stools, green naug., formica top, $30. 213-644-2989.

Airplane, Cessna 150 Commuter, 1970 mod., elec. T&B, remote compass, heated pitot, 300 com nav., no dn., take over pymts., approx. $6,750. 805-947-7020, 805-947-6412.

Cocktail Dresses, 2, knee length, size 18½ tall, $10 ea. 213-545-7952.

Poker Table, w/masonite cover, $17.50. 213-675-3957.

Ski Boat, 16′ Starcraft Jupiter runabout, 55 h.p. Chrysler outbd., trailer, $1,500. 213-375-3977.

Ditto Machine, Heyer mod. 70 Mark 3, $50. 213-326-0279.

CB Radio, base or mobile 23 ch., many extras, $175. 213-676-5787.

Tent Trailer, sleeps 6, ice box, sink & storage, $375. 213-371-2783.

Surfboard, 9′, $40. 213-329-1861.

Camera, Pentax Spotmatic outfit, 2 bodies, 28 f2.8, 35 f3.5, 50 f1.4, 105 f2.8, 200 f4 lenses, cases, many access., $450. 213-541-2071.

Adding Machine, Burroughs elec., $48. 213-675-4256.

Travel Trailer, 1959, 16′ Shasta, elec. brakes, $400. 213-326-5566.

Camera, Minox B, w/flash, $85. 213-378-1432.

Telescope, Sears Varipower, 60 MM, 15/30/45/60 pwr. settings, tripod, $25. 213-372-0540.

Honda Scout, 1961, reblt. eng., equipped for street, $65. 213-675-2159.

Washer, Maytag w/load levels & fab. controls, $75. 213-679-6672.

Dining Table, w/2 boards, 4 side & arm chairs, burled birched, Med. hand-carved, $85. 213-294-4941.

Trailer, furn., bath, 2-bdrm., dps., cpts., awning cover porch & stor. shed, $3,900. 213-375-0017.

Pups, Labrador Retriever, blacks & yellows, AKC reg., $90-$125. 213-377-6658.

Radio, Hallicrafters S240, AM/FM, short wave, all solid state, $40. 213-599-7009.

Miscellaneous For Sale

Coins, 55 rolls of circulated Lincoln cents, in plastic tubes & storage boxes, 1936-P-D-S to 1964-P, $69.65. Box 1201.

Tape Recorder, TC-500 Sony, incl. 2 mikes, 20 W. sound system, $200. 213-265-2935.

Motorcycle, 1970 Honda Trail 90, street, $275. 213-378-4422.

Sofa, custom 2-pc., 8½′, $50. 213-645-7972.

Water Pipe, 12 pcs. ¾″ galv., 20′ lg., $3 pc. 714-774-4458.

Piano, remodeled upright, light wood grain, $150. 213-941-3804.

Wanted to Buy

Fairing, brown, metal-flake, w/windshield, in good condition for Honda CB500K1. 714-774-4187.

Trumpet, reasonably priced. 714-897-2007.

Lathe, 5″ Atlas or similar. 213-545-5960.

Utility Trailer, box-type, metal or wood, 5′x8′ or larger, single or tandem axle. 213-633-8682.

Tool Box, roll-a-way, prefer 8-dwr. model, Sears or equivalent. 213-374-2915.

Northrop Radio Club wishes to buy antenna rotator AR-33, AR-44, or HAM-M, in working order or we can repair. 213-374-8289.

House, 2-bdrm., Torrance, Redondo, Walteria area. 213-377-4173.

Free (To Be Given Away)

Dog, small female, 1 yr. old. 213-676-0516.

Trade

Tires, 5 F78-14 blackwall, used, trade for 3 books of Blue Chip stamps per tire. 213-597-5232.

TV, Motorola 23″ color, console, 2 yrs. old, trade for TV of like value in RCA portable 21″ color w/stand. 714-828-2857.

Personals

Ride Wanted, 7 a.m.-3:42 p.m., Market & Regent, Inglewood to Plant 3, Aircraft ext. 1686.

Ride Pool partners wanted, 8 a.m.-4:42 p.m., Orange County to Hawthorne, NRTC ext. 4591, 714-630-1629.

My sincere thanks & appreciation to all my Northrop friends & co-workers for the flowers & expressions of sympathy on the passing away of my father. FLORENCE R. PETERSEN.

We wish to extend our deep appreciation for the kindness extended to us during the recent passing of Reginald I. "Bob" Hampton, our beloved husband & father. IDA L. & REGALEEN HAMPTON.

The families of Betty Wooldridge, mother & sister, Rose Roeser, wish to convey their appreciation & gratitude for the flowers sent by Northrop & donation made by Product Support to the Cancer Foundation in behalf of their father & husband.

I wish to express my most sincere thanks & appreciation for the lovely planter & kind expressions of sympathy on the recent death of my brother. NANCY MYHRE.

Our sincere thanks to all of Floyd's friends for the many cards, flowers & kind expressions of sympathy at his passing. MRS. FLOYD HEAGLE & FAMILY.

We wish to extend our appreciation for the help & comfort extended by our many friends at Northrop during our recent loss. THE OSBORN FAMILY.

Person or persons witnessing auto accident Oct. 30, 7:40 a.m. at Prairie & Redondo Beach Blvd., please call 213-542-4091.

Car Pool, 7:30 a.m.-4:12 p.m., San Bernardino Fwy. & Garey Ave., Pomona, to Plant One, make pickups at Covina, Puente, Glendora or Brea, Aircraft Div. ext. 1293, 714-593-4811.

For Sale or Trade

Vega, 1971, G.T., fully equipped, stereo tape, tent, $1,995, or trade for Honda & cash. 213-291-6075.

NORTHROP NEWS

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DISCUSSING A special toll free health information service telephone line to serve the Centinela Valley are, from left, George L. Matuskey, administrative assistant, Aircraft Division Medical Department; Bea Weiskopf, director, Social Services, Daniel Freeman Memorial Hospital; Supervisor Kenneth Hahn; and Sister Mary Ester, administrator, Daniel Freeman Memorial Hospital. Health information and local referrals are now available to residents of Westchester, Inglewood, East Inglewood, Lennox, El Segundo, Hawthorne, Lawndale, and Gardena, through a new toll free number, 673-1592, on a 24-hour basis. Northrop is assisting the project by buying the paper and printing 500,000 information flyers.

Worms Tell Researchers About Space Flight Effects

Tiny worms that normally live in the intestinal tract of mice are telling scientists something about the possible effects of long space flights, according to a report made at NASA's Manned Spacecraft Center, Houston, by Richard A. Long, a Northrop Services Inc. research assistant.

The worms—called nematodes—were placed in a special biological container aboard the Apollo 16 spacecraft last April, Mr. Long said.

Study of the worm larvae following the flight showed a serious reproduction deficiency.

"Future flights involving man in space may reveal that this deficiency is manifest in other, more advanced animals," Mr. Long said.

For the experiment the nematode larvae were divided into five groups. Three of the groups were carried on the spacecraft and two were left behind to serve as ground controls.

Two of the groups were exposed to ultraviolet radiation from the sun when Astronaut Thomas K. Mattingly made a space walk. The third group was not exposed. Nevertheless, all three groups subsequently exhibited reproduction deficiencies.

Mr. Long said he had no idea what there is in outer space that could cause this effect. Nor is he suggesting at present that there is any link between man and nematodes.

However, he suggested that the reproductive functions of man be tested for long space flights, perhaps by flying sperm specimens and then testing the results of such a trip on their viability and other biological factors.

Such information is of great importance as future Skylab and manned flights to Mars keep men in space for increasingly long periods of time.

DIVIDEND DECLARED

The board of directors of Northrop has declared a quarterly dividend of 25 cents per share on Northrop common stock, payable Dec. 23 to common stock of record Dec. 4.

The board also declared a quarterly dividend of 36¼ cents per share on Northrop $1.45 cumulative perferred stock, payable Jan. 6, 1973 to preferred stock of record Dec. 20.

Northrop is now listed as a diversified advanced-technology company which operates primarily in the fields of aircraft, communications, electronics, construction and systems management.

Northrop Purchases Firm in New Jersey

Northrop Corporation has acquired for an undisclosed cash sum a 23 per cent interest in General Energy Resources, Inc., of Burlington, N.J.

General Energy is a leading mechanical construction firm specializing in the fabrication and installation of piping for nuclear and conventional power plants, water pollution control systems, desalinization and water treatment plants, and petrochemical processing and manufacturing facilities. General Energy's management estimates that sales for 1972 will be approximately $23 million. Its backlog at Sept. 20, 1972, was $48 million. Northrop lists annual sales of more than $600 million.

Aside from its merit as an investment, the purchase will give Northrop an understanding of the technology of two important new fields: nuclear power plants and water pollution abatement facilities, which may offer new opportunities for the application of aerospace technology.

The purchase was made from William J. Doyle, owner and chief executive of General Energy Resources. To assure close coordination, Mr. Doyle has been named a Corporate vice president of Northrop.

NAL Research Facility Praises George Fuller Co.

The George A. Fuller Company, a New York construction subsidiary of Northrop, was paid tribute by the American Society of Civil Engineers for providing architectural, engineering and construction management services for the construction of a 200 BeV accelerator.

A project of the National Accelerator Laboratory (NAL) in Illinois, the world's largest proton accelerator is being built to study nuclear and subnuclear particles.

Dr. Edwin L. Goldwasser, deputy director of the NAL research facility, paid tribute to the Fuller Company and three other joint venture firms. He said, "We have insisted that our structures perform better than their specifications and that they be esthetically pleasing. All of this they have accomplished and always with understanding and good humor," he added.

Master planning for the 6,800-acre site required considerations similar to urban development—land use, impact on surrounding communities, road layout, personnel movement through the experimental facilities, and utility distribution.

COMMUNITY INVOLVEMENT

The last issue of the Northrop News included a questionnaire on individual community involvement. Results of the survey indicate that Northrop employees spend an average of 10 hours per week each in community service activities. With a nominal work force of 15,000 people, this equals over seven million hours per year devoted by Northrop employees to their communities!

MEDALS ON SALE

The NRC Coin Club has announced the striking of a Commemorative Medal to celebrate the Club's Silver Anniversary this year.

Starting in 1947 as the joint Coin and Stamp Club, it is one of the oldest consecutive activities of the NRC.

The medals are at all Personnel Activities offices, according to Club Commissioners Jack Wilson, Aircraft Division, and Dick Reamer, Electronics Division.

NRC COIN Club's commemorative medal.

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